

# SPARKS JOURNAL

★ ★ ★ ★ SOCIETY OF WIRELESS PIONEERS, INC ★ ★ ★ ★

## LEGENDS OF THE WIRELESS PIONEERS

RECORDING THE EARLY HISTORY & DEVELOPMENT OF THE WIRELESS

VOLUME 5, NO. 3

MARCH 18 1983

HENRY W HENRY DICKOW EDITION

### A LEGACY

### OF 19TH CENTURY ACHIEVEMENTS



**Cmdr. Karl H.W. Baarslag USNR RET.**

Cmdr. Baarslag [ 175-SGP ] joined the Society of Wireless Pioneers in 1968 and has served as both Director and Area Representative (as well as Historian). With his permission, we have published several chapters from his book "SOS TO THE RESCUE" in past issues of the Sparks Journal. Other publications include five books in addition to many articles, manuals and brochures.

Karl spent many years at sea both commercially and in the United States Navy, his first ship being the S.S. Oceanus/KFYC in 1924. During the invasion of the Netherlands and NW Germany, Cmdr. Baarslag served as Special USN Representative on the staff of Marshal Montgomery. In Washington he held many top intelligence positions of our government. His service to our country fighting subversiveness is well known and documented.

### Honoring the Historians

We will not attempt to list names of Society members who have added to the endowment of history in this issue. In the short space available, we will feature one of our earliest members, who through a period of years in research and editing, has bequeathed his work to the Society. Henry Dickow became a 'Silent Key' in April 1971. You will read more about him starting on Page 4 of this issue.

The Society takes pride in saluting the Historians of our craft who have preserved the legacy of the Wireless and left us with the heritage of one of mankind's greatest gifts ... that of 'instant communications' to nearly any point in the world.

The Nineteenth Century can be identified with the development and use of the Hertzian waves which now, in its various modes and uses, has revolutionized the lives of nearly everyone on earth. More is yet to come !

Among those who have recorded much of the progress in Electronic Communications, especially in the field of Wireless transmissions are many who are members of the Society. We have inherited the brilliance of early day minds, enhanced by scientists, scholars and entrepreneurs whose vision will enrich our living standards beyond present day comprehension.

The historical ledger of our Society includes the names of many who have contributed in large measure to our knowledge. We salute them. They have recorded the heritage of a craft that is proud of its traditions and contributions to mankind.

Included in this edition is a short biographical sketch of another of our outstanding historians. Cmdr. Karl H.W. Baarslag authored "SOS TO THE RESCUE" in 1935. It was perhaps the very first book ever published that recorded, in detail, such a complete history. These were the wonderful benefits Wireless brought to the people of the world - especially those in the transportation industry. His picture is at the left. Commander Baarslag retires each summer to his beach home - a stones-throw from the Cape Hatteras Light. A restful spot for a man of the sea.

### Great Moments in Communication



IT IS 1941 and at West Point, New York, the United States Military Academy or the Hudson, Sergeant Don Masten sits at the main operating position of "WVW", the post radio station. To the right is copper tubing mounted on stand-off insulators. This tubing carries the shielded twin lead feed lines from the receiving dipoles on the roof of the headquarters building. The receiver on right is a Sylvania. Receiver left is a Hammarlund Super-Pro. The box left of Super Pros is a code oscillator used for training student operators. Both speed and hand key are mounted to right of the 'Mill.' Operators have a headphone on the land-line telephone. Incoming messages from the Post (West Point) are received on telephone and are typed as they come in for subsequent transmission by radio.

We take great pleasure in reprinting the above illustration from the pages of the current issue of "COMMUNICATION NEWS" through permission of the publisher). "Don" Master [777-V] is one of the Society's very dedicated members. "Don" is CHOP (W2LEL) of our Pickerill FM Net Mondays 1000E on 145.135 Mhz.





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NOTES: Theodore K. Phelps relieves Paul M. Stevenson (Chap XIV) April 30 1983.

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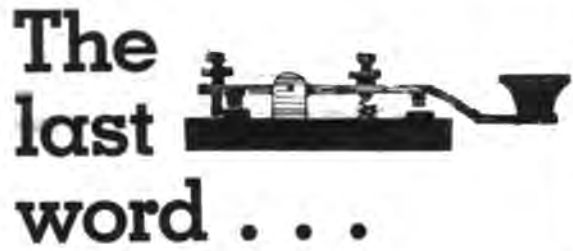
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**PICTURE CREDITS.**

Many from the 1910-1935 Era furnished from many sources including Henry W. Dickow and his collection. The Marconi International Fellowship Foundation, Angela Gwynn John & Associates furnished some on Page 13 while others have been furnished by Marconi International Marine Co. Ltd. A. W. Hutchinson, Editor "Mariner" Thanks to all for permission to reproduce these Historical pictures.



**NEXT ISSUE**

We published the news in our last Sparks Journal of plans (at that time) to feature Aviation Radio in the forthcoming issue [this edition]. Many of our members told us however, it did not give them enough time to get pictures and material all together in time hence we decided to postpone this edition one quarter. A large segment of our membership have spent time in the Aviation Radio field so we expect the next edition (or two, if necessary) should be of great interest.

**ABOUT DUES**

We have received letters from members inquiring about their dues status etc Since the Journal is a Historical Paper, we prefer to carry this information in our Skipper's Log, Netbuls, etc. However, since these may not reach you at an early date we will briefly furnish the information: Annual Dues on a "Calendar Year Basis" is \$10 per annum. Three years in advance @ \$25.00. Payment in US funds. Dues are payable the first of each year in advance. We normally do not pull an address card for several months - however we would appreciate early payment of dues.

**ABOUT SASE AND COA ( CHANGE OF ADDRESS )**

Failure of members to inform us of COA's well in advance is one of our greatest problems. We do not like having to pay the POD for form 3579 (non-deliveries) and replacement cost at higher mailing even paid by member causes an awful lot of work which we do not have manpower to handle. SASE: The sending of a return, stamped envelope inquiring about news etc. will save us MUCH work and expedite our QSL in replying to your questions. Please help us out on correspondence.

**Early Days of The Wireless - A Historical Record**



THE WIRELESS

PIONEERS



Founders Page



William A. Brennan



Pix of 'Ye Ed' taken circa 1928, doing a bit of 'sight-seeing' on the bridge of the SS. City of Los Angeles as it was passing Eastbound through the Straits of Magellan on its First Cruise trip around South America.

The workload on this trip was quite horrendous due to the volume of traffic generated by some 27 millionaires aboard ( and others) many of whom sent messages daily with word count of four or five hundred words. This plus STATIC...STATIC...STATIC... and poor stations to work in some areas gave us a workout. We did clear the hook but it took blood sweat and tears from three seasoned ops aboard. (Hi-Freq. had not yet arrived on KOCZ).

DEDICATION

This is dedicated to members of the Society of Wireless Pioneers and all wireless and radiomen who "Went down to the Sea in Ships", as wireless telegraphers, and all those who have earned their living "Pounding brass," as wireless operators since the days of Marconi.

This was the age of the confirmed wireless operator, and the unmitigated experimenter. It was the beginning and the forerunner of the Electronic Age and a new dawn in communication history.

Among the dedicated pulled into the game, by the lure of the scintillating, and crashing spark, and the attraction of the sea where drifters, grifters, and the travelers; not necessarily abstemious but men of the common clay of the "Wireless Age."

Remuneration was frugal. The hours were long, but you listened for distance on a good night, and the signals floated in far into the early morning hours just before dawn. You lived in hope you would pull in that record breaking distance signal, that would have them all beat.

On such a night you could hear a pin drop in Honolulu, as the saying went. Except for static there was no spill over or CW mush from other services. Everything came in clear as a bell; The growl of some distant coast station you had never heard before came tumbling in, and you were on cloud nine.

These were the men driven by the fascination of the leaping spark who were looking for a hidden power locked in the nucleus of that bright green flame. The mortar between the bricks was the non-technical expression of that day and age.

Even then, men thought along these lines, which finally lead to the splitting of the atom, although our generation never reached that accomplishment. Their dedication lead others to the door.

Lament on a Sea-Going Lumberyard

By "PJ"

From the Japanese shores to the warm Azores,  
From the Straits or the Sound to wherever you're bound,  
Whatever you do you will hear the CQ  
Of a broad husky spark that will ask "QRU?"

(Chorus)

If there's a seldom-traveled spot upon the ocean,  
Or a place that no landlubber ever knew,  
Even there 'tis with regret  
That you open up your set,  
For you'll hear the plaintive murmur, "QRU?"

Now it seems that every spark and each little chopper arc  
Will all start together when you're trying to get weather,  
So the lightship can't get thru when it sends CQ.  
Let them dangle at the yardarm if they transmit "QRU!"

(Chorus)

If, etc.—

Thought I'd let my doctor check me  
'Cause I didn't feel quite right.  
All those aches and pains annoyed me  
And I couldn't sleep at night.  
He could find no real disorder,  
But he wouldn't let it rest.  
What with Medicare and Blue Cross,  
Wouldn't hurt to do some tests.  
To the hospital he sent me,  
'Though I didn't feel that bad,  
He arranged for them to give me  
Every test that could be had.

I was fluoroscoped and cystoscoped,  
My aging frame displayed,  
Strapped upon an ice-cold table  
While my gizzards were X-rayed.  
I was checked for worms and parasites.  
For fungus and the crud,  
While they shoved long needles in me  
Taking sample of my blood.

Doctors came to check me over,  
Probed and pushed and poked around,  
and to make sure I was living,  
Had me wired up for sound.

They have concluded,  
Their results have filled a page  
What I have will someday kill me —  
My affliction is old age.

(AUTHOR UNKNOWN)

My chief trouble was that the idea was so elementary, so simple in logic, that it seemed difficult for me to believe that no one else had thought of putting it into practice.

G. Marconi

World's First "Disk Jockey"



Charter Member RAY NEWBY & XYL [ 49-S-SGP ]. "Nube's" claim to being the world's FIRST DISK JOCKEY is well documents - this circa 1909.. We were pleased to hear "Nube" last week (March 14th) when he was presented as the first guest on a brand new program by KCBS hosted by Chet Casselman called "News Scope". He did himself and the profession 'proud'! And at 90 years of age ! Sharp as a tack and still under full steam. Those who heard him thoroughly enjoyed his early experiences at "KQW" and his sense of humor. It was a "Good Show" Charlie Brown. Come again.





## Dickow's Legacy to SOWP



"Dick" & "Betty" Dickow

Henry W. Dickow

1897.....1971

The beauty of this day has passed,  
For each cycle, they never last,  
Whether it gives us sunshine, rain, sleet or snow,  
We mortals like the day, will also have to go.

Lee O. Fassett

HENRY W. "DICK" DICKOW was a very unusual person. He was one of the most outstanding historians of the Wireless and Radio. If any surpassed him in fame, it was probably only by the legendary Hugo Gernsback (1884-1967) who might be called the "Father of the Experimenters".

He closed his key for the last time and signed off at 1:10PM, APRIL 17, 1971 in the Veterans Hospital, Palo Alto, Calif., where our Creator called him to peace after two years of intensive suffering and pain. He is survived by two sons, Henry W. Jr. of Hillsborough and Robert L., of San Carlos, also a daughter Margaret Anderson of Oakland, also wife Betty who did everything possible for him through his long illness.

When Bill Breniman mentioned his plan for a Society of Pioneer Wireless men, Henry Dickow endorsed it with unlimited enthusiasm. He is Member No. 3-SSGP in the Society and No. 1 HONORARY MEMBER. While "Dick" was too busy at first (working on his proposed book - 'TALES OF THE WIRELESS PIONEERS' on which he spent nearly three years) and later too ill to complete, he did generate a considerable volume of correspondence relative to our plans and the program. Later, when it became apparent that he might not survive his illness, he made an outright gift of the three years of work and research he had put in on his proposed book. The result is that the Society's Executive Director probably has one of the most outstanding libraries of memorabilia on the early days of the wireless and radio in existence. We have much to thank him for.

Henry's early home was on Eddy Street (between Jones and Leavenworth) in S.F. It was destroyed by the quake of 1906. One year before the S.F. Quake, Dickow bought a small printing press (Christmas 1905). When it was apparent that the fire might burn their home, he buried his printing set but it was damaged beyond repair - all type had fused into a solid mass.

Early amateur call (self assigned) was "DO" in 1907. With Les Grogan (118-SG) Henry helped build the city's first sets which greeted President Theodore Roosevelt's GREAT WHITE FLEET when it sailed into the Bay in 1908. Dickow's first assignment as radio operator was aboard the SS FIFIELD/WRF in 1913. He was called upon to send the S-O-S signal from the SS PECTANE in 1914 when she went aground in Santa Barbara Channel.

After a couple of years at sea and with the growing interest in wireless/radio, Henry felt the time was opportune to start a magazine on the subject. Hence, on Dec. 15, 1916 the FIRST EDITION of "PACIFIC RADIO NEWS" was issued. It was 48 pages and cover. Among those associated with Dickow in the venture were Paul Fenner (43-SGP) Business Manager; Lee O. Fassett (37-SGP) Ass't. Manager; D. B. McGown, Ass't Editor, Ed. Radford sold advertising locally.

It is understood that SOWP Member Leslie Grogan (118-SGP) also held an interest in the organization. Henry Dickow was the editor and the first feature article was entitled... "DR. LEE deFOREST VS O.B. MOORHEAD", a 3-page account of Moorhead relative to controversial legal issues and testimony in which de Forest charged Moorhead with patent infringement of vacuum tube. Press run 2000 copies with 1,000 to wireless operators and 1,000 to news-stands. Price was 5¢ each or \$1.00 per year for 12 issues. After 3 issues war was declared, all radio shut down so the "PACIFIC RADIO NEWS" suspended for the 'duration'. ED STEVENS (379-SGP) was subscriber No. 1. Vol. 1, No. 5 went to press May 1917 and was the last edition published.

Following the war, PACIFIC RADIO NEWS resumed in January 1920 with a "Victory Edition". Paul Fenner became Editor with Dickow Business and Advertising Manager. McGown, Radford and Fassett did not rejoin the venture. Later Paul Fenner traded his half interest in PRN for a complete 5-watt de Forest R/T Transmitter in operation. Price of the new publication was 15 cents. PRN then mushroomed into a Bonanza. Arthur H. Halloran bought half interest. New office was opened in the Pacific Bldg., at 4th and Market. Name of the publication was changed to "RADIO" Nov. 1st, 1921 and sold like wildfire, 56-pages w/cover with press run 10,000. Inaugural feature story was by HARADEN H. PRATT, Chief Engineer for Federal Telegraph Co. It described the new Federal Station at Palo Alto. "Radio" became the second largest radio publication in the world, second only to Gernsback's RADIO NEWS.

First book published by Radio was ... "C.W. MANUAL" by Jennings B. Dow. A book Bill Breniman used in this Los Angeles Wireless Institute as textbook on H. F. Transmissions.

First Audiotron advertisement in PRN was in Jan. 1917 by Elmer Cunningham. Audiotron later became the Cunningham tube. Cunningham later became President of RCA Tube Div.

Mr. Halloran died in 1964. The publication was sold years ago to K.V.R. Lansingh of Los Angeles.

One of the large book orders published as the "RADIO HANDBOOK" with Frank Jones. It was 20,000 copies and was a big seller. Radio later became the magazine "Audio".

During WW-2 Dickow worked for the Government, building radio stations, among them the "Two Rock Station" near Petaluma where he located the site and built a complex of 41 buildings.

Thanks goes to Leslie Grogan, Peter J. Becker, Jr., Richard Johnstone, Lee Fassett, C. J. Casebeer and several others for keeping us informed about Henry Dickow and his passing.

Your Executive Director became acquainted with Henry Dickow about 1920 when he published "THE TRANS-PACIFIC RADIO OPERATORS GUIDE". Dickow graciously furnished cuts for illustrating the booklet (The SS PASTORES) . . . During the following five or six years, a periodic column was furnished Dickow for use in "RADIO" including a story on the sinking of the SS TITANIC which took several months of research and one of the first ever published. Since then we have read many "versions" of the sinking.

HENRY W. DICKOW is a man highly honored by the Society - and one who we will always include in our "WIRELESS HALL OF FAME".

WILLIAM A. BRENNIMAN

Henry W. [Dick] and Betty Dickow taken by Commodore W. Earle Wohler at his Sebastopol home circa 1969 during a reunion of the Wireless Pioneers attending including Gerald Whittaker and Ye Ed William A. Breniman and their wives. "Dick" became a SK 4/17/71.



# DICKOW'S HISTORY OF THE WIRELESS TELEGRAPH

Written by one of the World's Foremost Publishers.

## Dawn of a New Era

The dawn of a new era came in June of 1895 when a young Italian experimenter sent the first telegraph signal through space without the use of wires. The exact date, which has been lost in history, marked the beginning of the wireless age.

The discovery was made by Guglielmo Marconi while experimenting on his father's estate at Pontecchio, near Bologna. He did not invent the apparatus used for this test; all of it had been discovered earlier. He merely connected an aerial and a ground to a few pieces of electrical equipment...and thereby succeeded in sending intelligence through space.

Marconi was a modest man. He did not lay claim to the invention of wireless communication as such; he asked only that he be credited with the discovery of a system for making it possible.

As early as 1831, Michael Faraday discovered that a phenomenon called electromagnetic induction was found to exist between two entirely separate electrical circuits. He had unwittingly discovered the first means of transmitting wireless energy.

Seven years later, it was found by Carl August Von Steinheil that an electrical circuit could be made to operate with only one wire if a ground return were used for the other.

In 1867, John Clerk Maxwell, a Scot physicist, read a paper before the British Royal Society in which he predicted the existence of electrical waves similar to those of heat and light. His famed Maxwell Equations gave proof of his theory.

In 1886, Prof. Heinrich Rudolf Hertz at Karlsruhe, Germany was the first to show that oscillating electric currents can produce other waves, like those of light, and subject to the same laws. With the aid of a resonator, or oscillator, he was able to transmit an electromagnetic wave through space over a short distance.

Hertz doubted that his discovery would have practical value, and said as much in a letter to a friend named Huber in Vienna. Yet in honor of Hertz, the wireless fraternity has continuously referred to wireless waves as Hertzian Waves.

The Hertz Resonator was a simple nearly-closed loop of wire which served as a wave detector at the receiving point. Marconi opened the loop, and made it into an aerial. The earth return circuit, or ground, had been used as early as 1880 by John Towbridge of Harvard, who systematically studied the problem of propagation of electric current through "earth", either soil or water. He found that a signal could be sent over a distance by electric conduction through the earth or water between places not connected together by wires.

Marconi's first transmitter consisted of a Ruhmkorff induction coil, or spark coil, the secondary wires of which were connected to a spark-gap, consisting of two closely-spaced metallic balls. To one terminal of this spark-gap he connected an aerial, and to the other a ground or earth. The primary circuit of the spark-coil could be opened or closed at will by a telegraph key or switch. The source of power came from conventional dry cells. This was the extent of Marconi's first wireless transmitter - the epitome of simplicity, and quite inexpensive.

## Predictions

Long before Marconi's discovery of wireless, the American author E. Bellamy made a prediction in his novel Looking Backwards, as follows:

"We would believe to have reached the heights of human happiness and have ceased to strive for further improvements, if we could invent a device which sends music into every home. Music that would be complete in its way, unlimited in duration and adaptable to all moods and which, in addition, would start and stop as desired by the listener."



GUGLIELMO MARCONI

"Give ear, ye heavens,  
and I will speak; And  
let the earth hear the  
words of my mouth."

Deuteronomy xxxii

One of the earliest exponents of wireless telegraphy was Prof. W.E. Ayrton, a noted British scientist. In a lecture at the Imperial Institute in 1897 he said:

"Some time the day will come, when we are all gone, when copper wire and gutta-percha cables will be seen only in museums; then a man who wants to talk to his friend and does not know where he is, will call him with an electrical voice. He will call 'Where are you?' And only a man possessing a similarly tuned ear will be able to receive the call. The friend will answer 'I am at the bottom of a coal mine near Newcastle,' or 'I am flying over the Andes,' or 'I am sailing across the Pacific.' Perhaps no voice will reply. Then it is sure that his friend is dead."

Ayrton's prediction was valid as it applied to the wireless, although the trans-oceanic cables with their copper wire and gutta-percha have nevertheless expanded enormously through the decades. Wireless has not replaced the wire telegraph or submarine cable.

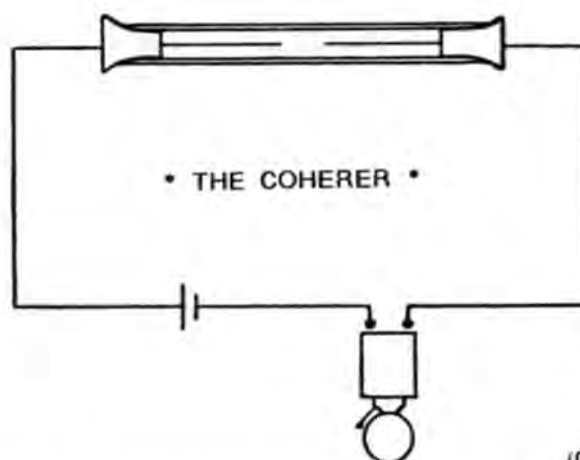


Marconi with receiving apparatus, approximately 1898. (Courtesy G. H. Clark Radio Collection)

## Marconi's First Receiver

With the exception of an aerial and ground connection, Marconi's first wireless receiver contained nothing new.

The heart of his receiver was a device called a coherer, a glass tube of small diameter which contained a small quantity of loosely-packed metallic filings, placed between two metallic electrodes. This coherer was the first detector of wireless signals.



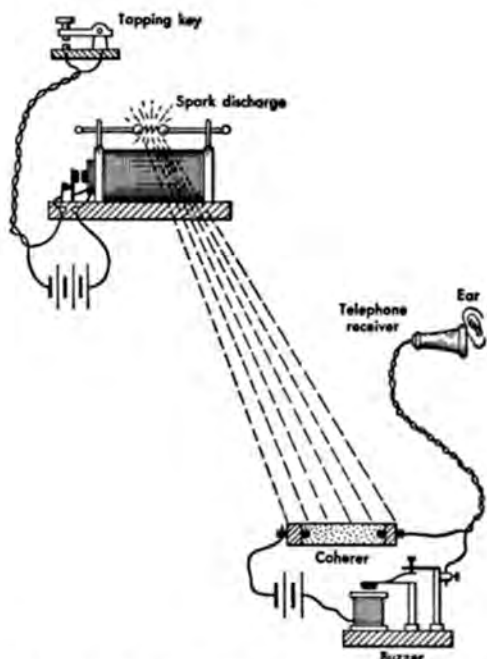
(Continued on Page 6)



## Wireless History—Dickow

(Continued from Page 5)

As early as 1879, David E. Hughes made the discovery that metallic filings were sensitive to electric sparks made in the vicinity. And in Paris, during 1890, Edouard Branly made the further discovery that fine metal powder could be made to agglomerate, or stick together, or cohere, when struck by tiny electrical sparks. Under these conditions, the agglomerated filings would act as a switch to close an electrical circuit. When connected to an electric bell and battery, the bell would ring when the coherer circuit was closed. An aerial wire was connected to one terminal of the coherer, and a ground to the other. Either a telegraph sounder or an electric bell could be used to signal the incoming wireless waves. A short ring of the bell or a quick tap of the sounder would denote a dot of the telegraph code, a long ring or prolonged tap would be a dash.



Representation of the fundamental features of wireless signalling, showing the spark gap of an induction coil which can be switched on and off by a tapping key in the circuit. Oscillatory currents from the spark gap excite the coherer, causing it to become a good conductor. If the coherer is placed in series with a battery and a telephone receiver, it will switch the current in the telephone on and off in synchronization with the tapping key of the transmitter. The coherer may also be used to actuate recording mechanisms.

Nothing could have been more simple than Marconi's early apparatus...a coherer, electric bell, a battery, and an aerial and ground at the receiving point; a spark coil, spark gap, a telegraph key or switch, a battery, and an aerial and ground at the transmitter.



MARCONI'S FIRST TRANSMITTER

It was with this induction coil and spark gap that the inventor conducted tests at Bologna in 1895. The copper plate at the top was used as the aerial.

None of this equipment was invented by Marconi. He merely put the components together, in the proper place, in the correct manner, and thereby gave the civilized world one of the most useful discoveries yet conceived by man.

## Who Invented Wireless ?

Discussing the question of "Who invented wireless?" the Marconi International Marine Communication Co. Ltd. cites a claim made by the Soviet Union that wireless telegraphy was an invention of the Russian physicist, Alexander Popoff, who likewise sought credit for the discovery of the coherer which he is said to have invented five years before Branly. Said the Marconi Company:

"It may be of interest as illustrating present-day Russian psychology, to quote from a letter which was sent to the Russian Ambassador in Rome in reply to an invitation to participate in the celebration in honour of Marconi in 1947 as follows:

'We have to inform you that the fiftieth anniversary of the invention of wireless by the Russian inventor Popoff was celebrated in the Soviet Union in 1945 and was followed by a series of official functions and lectures at the Academy of Science in the U.S.S.R. For this reason it is not becoming that the U.S.S.R. should be represented at the Marconi celebrations.

M. Kostilev'"

The claim was without merit. When the Italian cruiser Carlo Alberto dropped anchor in Russian waters, one of the first to board was Popoff. He had learned that Marconi was on this vessel and he hastened to shake his hand, with these words: "I should like to greet the father of wireless telegraphy." This statement was made in the presence of the Marchese Luigi Solari, an early friend and collaborator of Marconi.

The primary object of Popoff's experiments was not wireless telegraphy, as he himself had stated in a paper delivered to the Physical-Chemical Society of Petrograd. "I may express the hope," said he, "that my apparatus, with further improvements, may be adapted to the transmission of signals to a distance by the aid of quick electrical vibrations when sufficient energy is found." It was not until 1896, a year after Marconi announced his own discovery, that Popoff made his first successful wireless demonstration over a distance of 250 meters.

Dr. J.A. Fleming, in The Principles of Electrical Wave Telegraphy and Telephony, says: "The unquestionable fact, that at the beginning of 1896, although the most eminent physicists had been occupied for nine years in labouring in the field of discovery laid down by Hertz, and although the notion of using these Hertzian waves for telegraphy had been clearly suggested, no one had overcome the practical difficulties, or actually given any exhibition in public of the transmission of intelligence by alphabetic or telegraphic signals by these means. The appliances in a certain elementary form existed, the advantages and possibilities of electric wave telegraphy had been pointed out, but no one had yet conquered the real practical difficulties and exhibited the process in actual operation."

In America, a noteworthy decision was handed down by Judge William K. Townsend of the United States Circuit Court on May 4, 1905, in the hotly-contested Marconi versus deForest patent suit.

"It would seem," said the opinion, "to be a sufficient answer to the attempts to belittle Marconi's great invention that with the whole scientific world awakened by the disclosure of Hertz in 1887 to the new and undeveloped possibilities of electric waves, nine years elapsed without a single practical or commercially successful result, and that Marconi was the first to describe and the first to achieve the transmission of definite and intelligible signals by means of the Hertzian waves.

The exact contribution of Marconi to the art of spark telegraphy may be stated as follows: Maxwell and Crookes promulgated the theory of electrical oscillations by means of a disruptive discharge; Hertz produced these oscillations and described their characteristics. Lodge and Popoff devised apparatus limited to lecture or local experiments or to such impractical purposes as the observation of thunderstorms. Marconi discovered the possibility of making these disclosures available by transforming these oscillations into definite signals and, availing himself of the means then at hand, combined the abandoned and laboratory apparatus and, by successive experiments, reorganized and adapted and developed them into a complete system capable of commercially utilizing the discovery."

The parent Marconi Company makes it clear that Marconi was not the first to suggest the employment of electrical waves for the transmission of intelligence to distant points, "but his novel use of the elevated aerial wire and earth plate, and his final perseverance and clear grasp of the fundamental principles, was the first to produce an apparatus which could be worked by anyone, and did communicate intelligible messages to a distance. He gave to the world not an isolated performance, but the definite possibility of it being done by anyone with no particular skill at any time and at any place...All honor is due to Marconi for having been the first to bring prominently forward before official bodies and the public the possibility, and indeed, the eminent practicability of using Hertzian waves for telegraphing between two places not connected by an electrical conductor."

Continued on Page 7)



(Continued from Page 6)

The extreme simplicity of Marconi's early apparatus, and the scant few essential components needed for the construction of a wireless transmitter and receiver, caused a great horde of new-born experimenters and amateurs to rush into this exciting and romantic field of science whose possibilities seemed almost limitless.

## Marconi in England

Marconi left his native Italy for the British Isles in February, 1896, where he gave a series of demonstrations before the representatives of various government departments, one of the interested spectators being William H. Preece, Chief Engineer of the General Post Office of Britain.

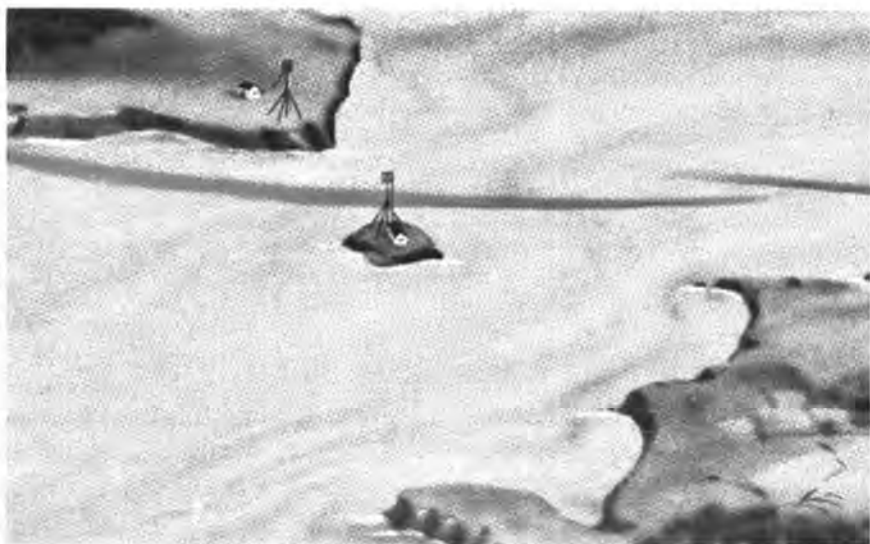
Preece was an ardent wireless enthusiast, having at various times attempted to perfect a system of his own by means of a current induced between two long parallel wires. He was unable to accomplish his objective.

An immediate friendship between Preece and Marconi ensued. He praised Marconi as a "young electrician capable of communicating by 'electro-static effects' - or wave telegraphy, with oscillations at the rate of 25 million per second." Preece foresaw that these waves could be projected through space in straight lines, and reflected and refracted in the manner of light waves.

With Marconi's help, Preece was able to prove his theory by sending messages from the roof of the Post Office Building to Salisbury Plain, a distance of 1-1/2 miles. A short piece of wire served as an aerial.

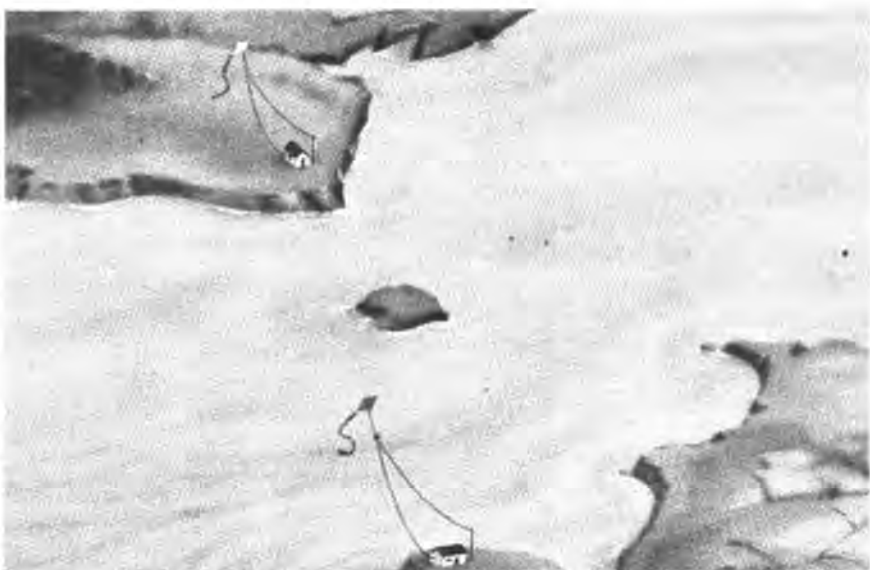
Preece was primarily responsible for Marconi's early successes, and he professed unbounded faith in the young inventor and his simple little transmitter and receiver. Funds made available by Preece soon enabled Marconi to widen his horizons.

## The First Successful Over-Water Tests



*Panorama of transmitting and receiving stations, used at Lavernock and Flat Holm Island, showing the construction of the aeriels, which, for these experiments, consisted of metallic cylinders supported at the tops of the masts and connected by wires to the transmitting and receiving instruments*

*Lavernock and Brean Down experiments, May 1897, showing the method by which an increase in distance from three miles to eight miles was obtained. For these experiments kites covered with tin foil and flown at a considerable height were used as aeriels instead of the metallic cylinders supported on masts. The two kites were used by Marconi for his first demonstration of wireless telegraphy before the Italian Government in July 1897*



The British Post Office Department came to Marconi's aid with the facilities and funds necessary to build an experimental wireless telegraph station at Lavernock Point, near Penarth, and two receiving stations - one on the Island of Flat Holm in the Bristol Channel, a distance of 3-1/2 miles from Lavernock, and another at Brean Down, Somerset, about nine miles away.

For these experiments, Marconi had at his disposal an improved type of spark-coil or discharger, with a hammer-lock vibrator of the *Rhigi* type. The receiver also had some improvements: a better coherer, and a siphon recorder, or inker, for printing the incoming signals on paper tape in the form of dots and dashes.

With this apparatus Marconi sent his first historic wireless signal over water; it was the letter *V* of the Morse telegraph code - three dots and a dash.

Fifty-one years later, on May 12, 1948, a bronze plaque was erected on the wall of St. Lawrence Church, Glamorgan, close to the point where the first experiments were conducted. The inscription reads as follows:

1897

1947

Near this spot  
the first radio messages  
were exchanged across water

by  
GUGLIELMO MARCONI  
and  
GEORGE KEMP

between Lavernock and Flat Holm, May 11;  
Lavernock and Brean Down, May 18, 1897.  
Erected by the Rotary Club of Cardiff, 1947

An interested spectator at this commemoration ceremony, says the English Marconi Co., was Mr. Henry Mathews, then aged eighty-four, of Penarth, who had watched Marconi carry out the experiments in 1897. He was a cab driver in these days, and went over several times 'to see what was going on' and to watch the experiments. 'I can see the young Marconi now,' he told the representative of a Cardiff newspaper. 'He was so keen, so vital about what he was doing. I leant against this very wall and watched him and Mr. Kemp preparing for their experiments. I little thought then that I would live to see the day when all these people would come to the old church to honour the young Italian in this way.'



*G. Marconi, Esq., L.L.D., D.Sc.*

*Taken circa 1912. 1913 edition of the Year-Book of Wireless Telegraphy and Telephony. Published by The Marconi Press Agency, 1913. Marconi House Strand, London, W.C.*

(Continued on Page 8)



# Wireless History—Dickow

(Continued from Page 7)

## Wireless Telegraphy in Germany

The year 1897 witnessed the first demonstration of a German system of wireless telegraphy called Slaby-Arco, developed by Prof. A. Slaby and Count Georg von Arco. It was similar in most respects to Marconi's discovery, yet no credit was paid him. The Russians adopted the German system for their war ships, and continued to use it until the Russo-Japanese war in 1904-1905, when the Russian fleet was decimated in Port Arthur.

Some German passenger and cargo vessels likewise were Slaby-Arco equipped, but in due time the apparatus was replaced by that of Marconi and the Telefunken Co.

## Long Distance Communications

Wireless communication over a distance of thirty-four miles was regarded as a spectacular achievement in 1898. It was accomplished between stations at Bath and Salisbury in a test conducted by the British Post Office. Later, the Speaker of the House of Parliament witnessed a demonstration between that august chamber and St. Thomas's Hospital - and Marconi was on his way.

## The First Commercial Wireless Message

The historian of The Marconi International Marine Communication Company Limited gives this account of the first commercial wireless message ever transmitted:

"Lord Kelvin visited the station at Alum Bay, and was so pleased with what he saw that he sent various telegrams to his friends--among them Mr. Preece of the Post Office. One of these telegrams read as follows:

TO MACLEAN, PHYSICAL LABORATORY, UNIVERSITY, GLASGOW. TELL BLYTH THIS IS TRANSMITTED COMMERCIALY THROUGH ETHER FROM ALUM BAY TO BOURNEMOUTH AND BY POSTAL TELEGRAPH THENCE TO GLASGOW -- KELVIN.

Lord Kelvin insisted upon paying one shilling royalty on all these messages, wishing in this way to show his appreciation of the system and to illustrate its fitness at that time for commercial use."

## Sports Events by Wireless

The world's first sporting event was reported by wireless in July 1898, when the Marconi Co. collaborated with the Daily Express to report the Kingstown Regatta. A shore station was erected on the grounds of the Harbor Master at Kingstown, and the steamer Flying Huntress was Marconi-equipped. The event was fully reported over the entire distance of the race, and the messages were then telephoned to Dublin for publication in the succeeding editions of the evening papers.

The success of the Regatta aroused the interest of Lloyd's of marine insurance fame. In August, 1898, wireless stations were erected for the purpose of announcing the arrival of incoming ships, a lighthouse on Rathlin Island at one point, and Ballycastle the other. The distance between stations was only seven miles, yet this was considered adequate by Lloyd's.

The tests were so successful that the underwriters gave high encouragement to Marconi, urging him on to greater achievements. It was then that Marconi turned to the sea, his future life devoted to safety measures and ship-rescue operations by wireless.

In recognition of his services to mankind, Marconi was elected an honorary member of Lloyd's on April 9, 1919.

By December 1898, regular wireless communication was established between the East Goodwin Lightship and the South Foreland Lighthouse, twelve miles distant. Two years later this link played a major role in saving several vessels and many lives. Property to the value of \$125,000 was once saved as a result of a single short message reporting that a ship had grounded on the Goodwins. "Thus very early in its history," says a Marconi report, "wireless proved its value to shipping as a means of safeguarding life and property."

# WIRELESS!

ABSORBING...Hobby  
ENGROSSING...Avocation  
FASCINATING... Work

From 1898 onward infinitely greater distances were spanned as a result of higher and better aerials, and by "tuning" the receiver and transmitter circuits with specially-designed coils, or inductances. The first patent for a Marconi system of tuning was issued in 1899, and carried the now-famous number of 7777.

At about this same time, Prof. Ferdinand Braun invented the cathode-ray tube, on which the success of today's television reception depends. Shortly thereafter he invented the "coupled resonant circuit" for wireless transmitters; this was an advanced method of tuning, which gave a greater degree of selectivity and efficiency to the circuit.

On March 27, 1899, Marconi telegraphed across the English Channel, while Slaby and Arco in Germany were able to span a distance of 30 miles.

In 1900, on the North Sea coast, the first wireless stations were built for maritime services. One installation was on the Borkum Reef Lightship, the other in the Borkum Lighthouse.

## Wireless in America

The first use of wireless telegraphy in American waters was in September and October 1899 to report the progress of the Shamrock and Columbia in the International Yacht Race. Marconi was at the scene. More than four thousand words were dispatched between a wireless-equipped vessel and a nearby shore station, from whence the messages were transmitted over the land-line to the New York Herald.

Soon afterward, Marconi equipped the liner St. Paul with his apparatus, and on November 15, 1899 he established communication over a distance of more than sixty miles. This was a new record, and was considered one of history's great events.

Major Flood Page described it in The Times of London, as follows:

"The idea of failure never entered into our minds. We felt complete confidence that the ship would be all right with Mr. Marconi himself on board. Yet, as may easily be imagined, we felt in a state of nervous tension.

It was 4:45 p.m. when our bell rang. 'Is that you, St. Paul?'

'Yes.'

'Where are you?'

'Sixty-six nautical miles away.'

"Need I confess that delight, joy, satisfaction swept away all nervous tension, and in a few minutes we were transcribing, as if it were our daily occupation, four cablegrams for New York, and many telegrams for many parts of England and France, which had been sent fifty, fifty-five, forty miles by wireless to be dispatched from the Totland Bay Post Office."

## First Ship's Wireless Newspaper

**THE TRANSATLANTIC TIMES**

VOLUME I. NUMBER 1.

**BULLETINS**

1:50 p.m. First Signal received, 66 miles from Needles

2:40 "Was that you "St. Paul"? 50 miles from Needles.

2:50 "Harrish! Welcome Home! Where are you?"

3:30 40 miles. LadySmith, Kimberley and Malakina holding out well. No lag bottle. 15,000 men recently landed.

3:40 "At LadySmith no more killed. Bombardment at Kimberley ended the destruction of ONE TIN POT. It was announced for 2:00 It is felt that period of anxiety and strain is over, and that our turn has come."

4:00 "Very to say the U.S.A. Cruiser "Charleston" is lost. All hands saved."

The thanks of the Editors are given to Captain Jamison, who grants us the privilege of the hour.

Nov. 15th	435
" 16th	436
" 17th	437
" 18th	438
" 19th	439
" 20th	440
" 21st	441
" 22nd	442
" 23rd	443
" 24th	444
" 25th	445
" 26th	446
" 27th	447
" 28th	448
" 29th	449
" 30th	450

97 miles to Needles at 11 o'clock, Nov. 15th.

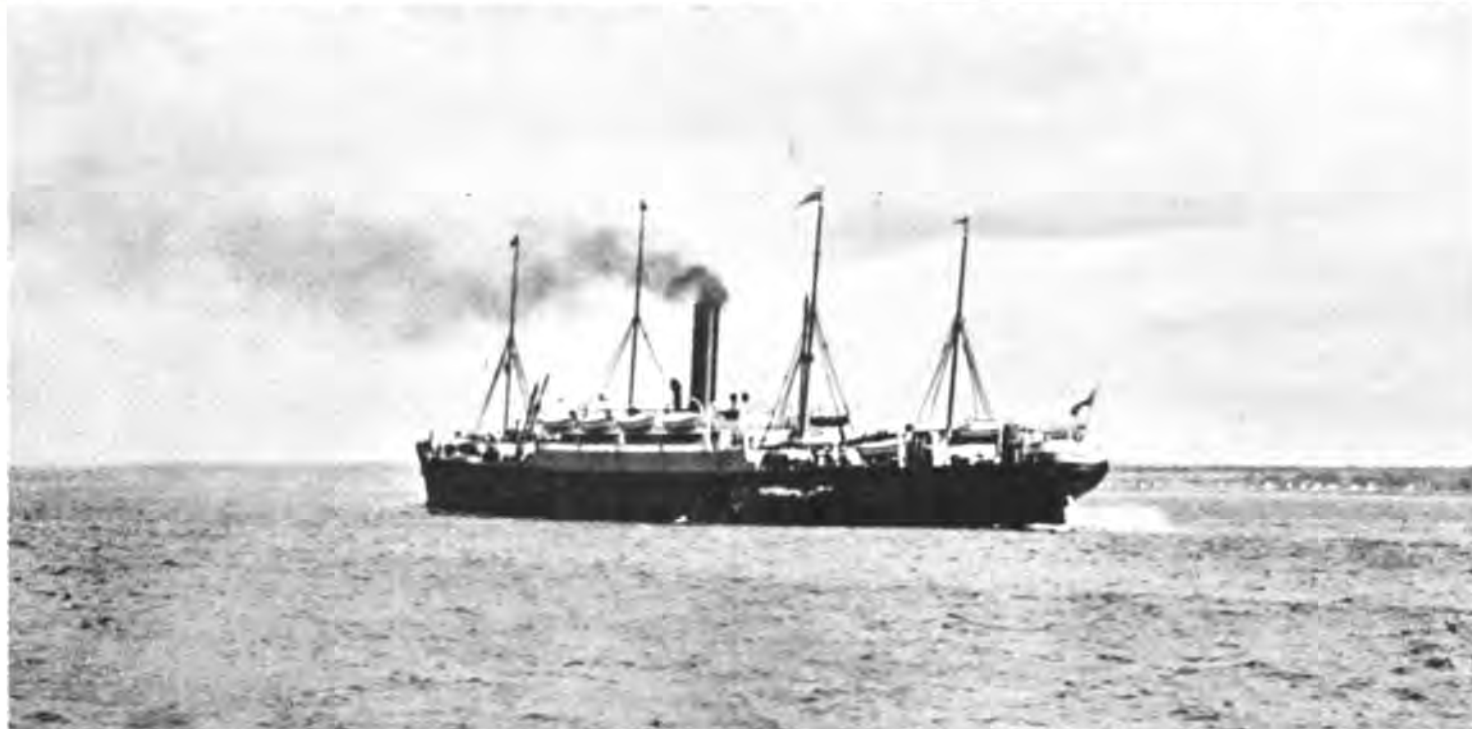
The first ship's newspaper ever to contain news by wireless was published on board the St. Paul when she was steaming up the English Channel on November 15, 1899. The ship was fifty miles away from the Marconi shore station at the Needles when the first news reports were received.

Copies of this newspaper were sold for a dollar each, at the suggestion of the ship's captain, with the proceeds turned over to the Seaman's Fund.

The newspaper was named The Transatlantic Times and copies were distributed to passengers and crew just before the vessel docked at Southampton.

(Continued on Page 9)





*The S.S. 'Lake Champlain' the first ocean-going British ship to be fitted with Marconi's wireless telegraph apparatus in 1901. This vessel was then owned by the Beaver line, which was a few years later taken over by the Canadian Pacific Railway Company*

(Continued from Page 8)

## First Commercial Maritime Installation

When the St. Paul was equipped with wireless in 1899, it was for experimental purposes only. The German liner Kaiser Wilhelm der Grosse became the first merchant vessel ever to be equipped for regular commercial service. And by one of the ironies of fate, she was also the first German ship brought to book through the medium of wireless telegraphy in World War One.

The first British merchant vessel to be fitted with Marconi apparatus was the S.S. Lake Champlain, of the Beaver Line, in 1901. Her first wireless telegraphist was Mr. F.S. Stacey.

A special wireless cabin had to be built on deck, there being no space available for the wireless apparatus in any other part of the ship. The cabin was built of match-boards. It had no windows. It was 4 ft. 6 in. long and 3 ft. 6 in. wide, no larger than a cupboard. It cost \$25 to construct.

## Marconi Spans the Atlantic

Marconi's crowning achievement came on December 12, 1901, when he received a wireless signal at St. Johns on Signal Hill, Newfoundland, from the Marconi station at Poldhu, a distance of over 2170 miles across the ocean. The announcement of this historic accomplishment startled the world. It is best described by Marconi in his own words:

"On November 26, 1901, I sailed from Liverpool in the liner Sardinia accompanied by two assistants, Messrs. Kemp and Paget. As it was clearly impossible at that time of the year, owing to the inclement weather and especially in view of the shortness of time to erect high poles to support the aerial, I had arranged to have the necessary aerial supported in the air by a small captive balloon, and so we took with us two balloons and six kites.

"We landed at St. Johns on Friday, December 6, and the following day before beginning operations I visited the Governor, Sir Cavendish Boyle, the Premier, Sir Robert Bond, and other members of the Ministry who promised me their heartiest cooperation and placed the resources of every department of the Government at my disposal in order to facilitate my work. They also offered me the temporary use of such lands as I might require for the erection of depots at Cape Race, or elsewhere, if I should eventually determine to erect the wireless stations which they understood were then being contemplated.

"After taking a look at the various sites which might prove suitable, I considered that the best one was to be found on Signal Hill, a lofty eminence overlooking the port and forming the natural bulwark which protects it from the fury of the Atlantic gales. On top of this hill there is a small plateau of some two acres in area which I thought very suitable for the manipulation of either the balloons or the kites. On a crag on this plateau rose the new Cabot Memorial Tower which was designed as a signal station, and close to it there was an old military barracks which was then used as a hospital. It was in a room in this building that I set up my apparatus and made preparations for the great experiment.

"On Monday, December 9, barely three days after my arrival, I began work on Signal Hill together with my assistants. I had decided to try one of the balloons first as a means of elevating the aerial and by the Wednesday we had inflated it and it made its first ascent during the morning. Its diameter was about fourteen feet and it contained some 1000 cubic feet of hydrogen gas, quite sufficient to hold up the aerial which consisted of a wire weighing about ten pounds. Owing, however, to the heavy wind that was blowing at the time, after a short while the balloon broke away and disappeared to parts unknown. I came to the conclusion that perhaps the kites would answer better, and on Thursday morning, in spite of the furious gale that was blowing, we managed to elevate one of the kites to a height of about four hundred feet.

"It was a bluff, raw day; at the base of the cliff, three hundred feet below us, thundered a cold sea. Oceanward, through the mist I could discern dimly the outlines of Cape Spear, the easternmost reach of the North American continent, while beyond that rolled the unbroken ocean, nearly two thousand miles of which stretched between me and the British coast. Across the harbor, the city of St. Johns lay on its hillside, wrapped in fog.

"The critical moment had come for which the way had been prepared by six years of hard and unremitting work in the face of all kinds of criticism and numerous attempts to discourage me and turn me aside from my ultimate purpose. I was about to test the truth of my theories, to prove that the three hundred patents that the Marconi companies and myself had taken and the tens of thousands of pounds which had been spent in experimenting and in the construction of the great station at Poldhu, had not been in vain.

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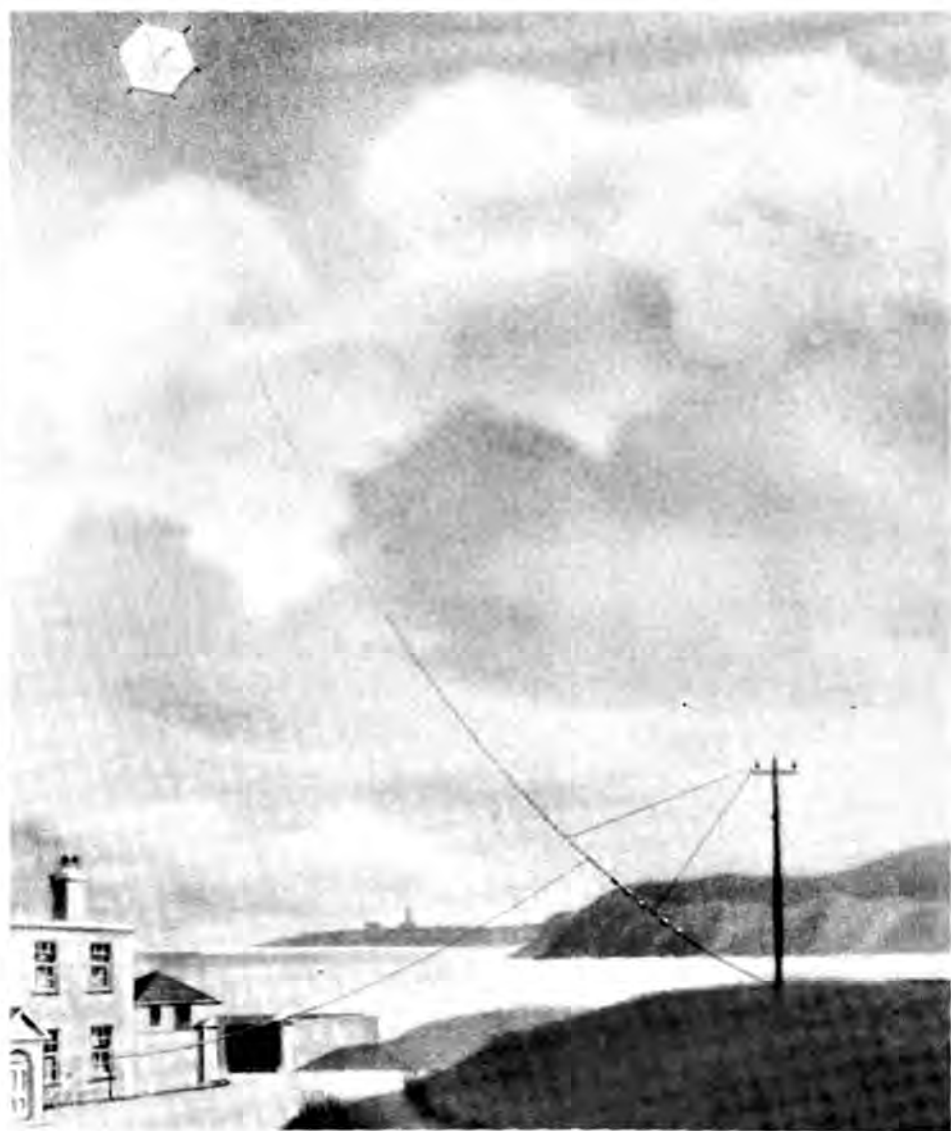
*Memorial to the Needles Wireless Station, Alum Bay, Isle of Wight. There are inscriptions on four sides, one recording that on June 3, 1898, Lord Kelvin sent from the Needles Station the first radio telegram for which payment was made; another, that it was on November 5, 1899, that the information for the first newspaper ever produced at sea—'The Transatlantic Times'—was transmitted from the station by wireless telegraphy and printed on the United States liner 'St. Paul' when fifty-six miles distant*



# A REVIEW OF WIRELESS HISTORY

Henry W. Dickow SSGP-3

(Continued from Page 9)



SIGNAL HILL, NEWFOUNDLAND, DECEMBER 12, 1901

*A drawing of the kite-suspended aerial by means of which the first Transatlantic wireless signals were received by Marconi at Signal Hill, Newfoundland, on December 12, 1901. The receiving instruments were in the room in the hospital attached to the Military Barracks, through the window of which the aerial and earth wires can be seen to enter. The aerial wire suspended by the kite was 500 feet in length.*

**AN EVENT OF THE FIRST MAGNITUDE** occurred in this building on December 12 1901 when the **FIRST TRANS-OCEANIC** signal was received by Marconi from Poldhu in Cornwall - a distance of over 2170 miles and across an ocean. This was despite adverse conditions as the antenna masts had been damaged by severe winter gales at Poldhu and time did not permit sufficient repairs. Photo - Courtesy The Marconi International Marine Communication Co., Ltd. Chemsford, England.

"In view of the importance of all that was at stake I had decided not to trust to the usual arrangement of having the coherer signals recorded automatically through a relay and a Morse instrument on a paper tape, but to use instead a telephone connected to a self-acting coherer, the human ear being far more sensitive than the recorder. Suddenly, about half past twelve there sounded the sharp click of the 'tapper' as it struck the coherer, showing me that something was coming and I listened intently.

"Unmistakably, three sharp little clicks corresponding to three dots, sounded several times in my ear; but I could not be satisfied without corroboration. 'Can you hear anything, Mr. Kemp?' I said, handing the telephone to my assistant. Kemp heard the same thing as I, and I knew then that I had been absolutely right in my calculations. The electric waves which were being sent out from Poldhu had traveled the Atlantic, serenely ignoring the curvature of the earth which so many doubters considered would be a fatal obstacle, and they were now affecting my receiver in Newfoundland. I knew that the day on which I would be able to send full messages without wires or cables across the Atlantic was not far distant and, as Dr. Pupin, the celebrated Serbo-American electrician, very rightly said shortly afterwards, the faintness of the signals had nothing to do with it. The distance had been overcome and further development of the sending and receiving apparatus was all that was required.

"After a short while the signals stopped, evidently owing to changes in the capacity of the aerial wire which in turn were due to the varying height of the kite. But

again at 1:10 and at 1:20 the three sharp little clicks were distinctly and unmistakably heard, about twenty-five times altogether. On the following day the signals were again heard though not quite so distinctly. On Sunday a further attempt was made to obtain a repetition of the signals but owing to difficulties with the kite we had to give up the attempt. However, there was no further doubt possible that the experiment had succeeded, and that afternoon, December 14, I sent a cablegram to Major Flood Page, one of the directors of the Marconi Company, informing him that the signals had been received but that the weather made continuous tests extremely difficult. That same night I gave the news to the press at St. Johns whence it was telegraphed to all parts of the world."

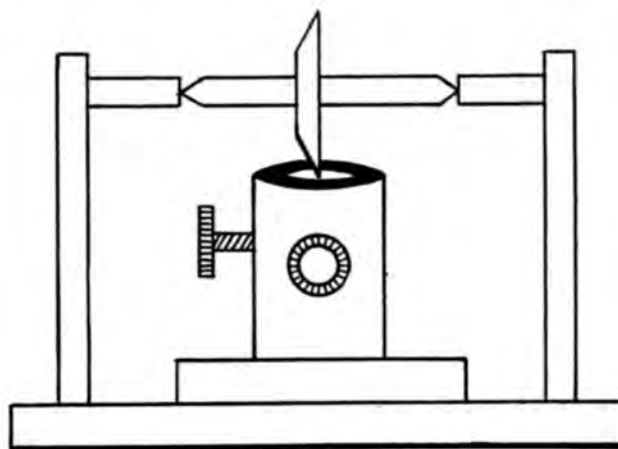
The success of Marconi's conquest of the Atlantic prompted the erection of fifty-four land stations in the British Isles while forty-four vessels were equipped with Marconi apparatus that same year.

Marconi died on July 20, 1937, and the whole world mourned the passing of one of the great figures in history. When his funeral took place on July 21, 1937 in Rome, all British Post Office wireless stations were silent for two minutes from 6 p.m. to the hour of the services; and at every Post Office wireless station throughout the United Kingdom the transmission and reception of radio messages ceased for two minutes. The silence was also observed by all broadcasting stations under the control of the B.B.C.

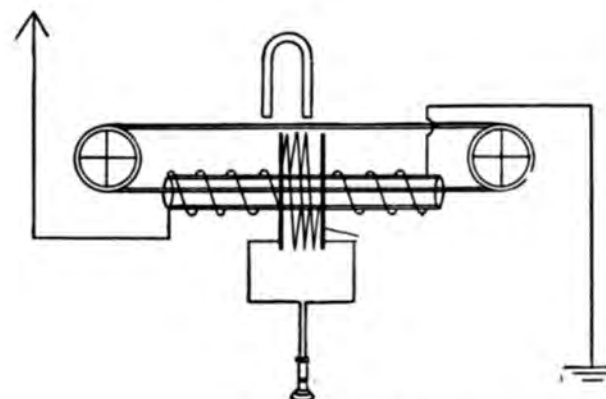
## Dissent

The critics and the skeptics were ever present to discredit the successes claimed by Marconi. They averred that his coherer was too insensitive to intercept signals from points several thousand miles away; that it would respond equally well to static crashes and lightning flashes which could not be distinguished from a wireless signal; that the three dots repeatedly heard by Marconi and Kemp at St. Johns were not actually the letter S of the telegraph code, but rather a group of atmospheric disturbances resembling such a signal. Even after Marconi's monumental trans-Atlantic feat had been duly verified both in America and in England, the doubters remained adamant. It was not until other experimenters in Germany, France, Russia, and America had been able to duplicate many of Marconi's accomplishments that his system of wireless telegraphy was finally accepted.

## The Coherer, Magnetic Detector and Fleming Valve



Lodge-Muirhead Coherer.

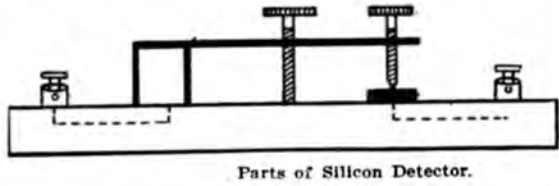
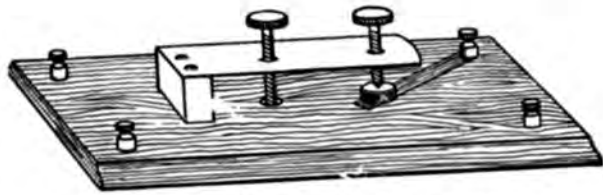


Marconi Magnetic Detector.

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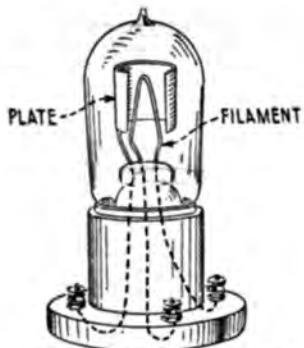


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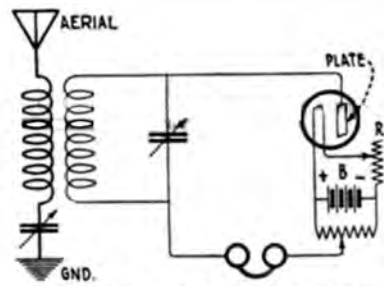


The cantankerous coherer soon gave way to better means of signal rectification and detection. It was replaced by electrolytic and electromagnetic detectors, and then by a two-element tube which contained only a filament and a plate; i.e., a diode. It was invented by John Ambrose Fleming who had, at one time, been Scientific Advisor to the Edison Electric Light Company of London, and in that capacity, had observed Edison's experiments with electric light bulbs. These early bulbs suffered from an internal discoloration of the glass which occurred under certain conditions of vacuum and voltage, thus causing the lamp to give off a blue glow. And while Edison recorded his observations of it, he was unable to explain the reason why. Edison's experiments took place in 1883, and a patent for an "electrical indicator" was issued to him in October, 1884, under the number 307031 in the U.S. Patent Office.

Scientific studies of the effect were made throughout England in 1897, and Fleming, then under contract to Marconi as a consultant, constructed a vacuum tube with a cathode and anode. The cathode was the filament, the anode the plate. Fleming successfully used his tube as a detector, a one-way valve, causing it to be known thereafter as the Fleming Valve. When connected between the aerial and earth circuits of a radio receiver it functioned as a detector of incoming waves.



The Fleming valve, which contained but two elements: i. e., filament and plate. It was the forerunner of the modern vacuum tube.

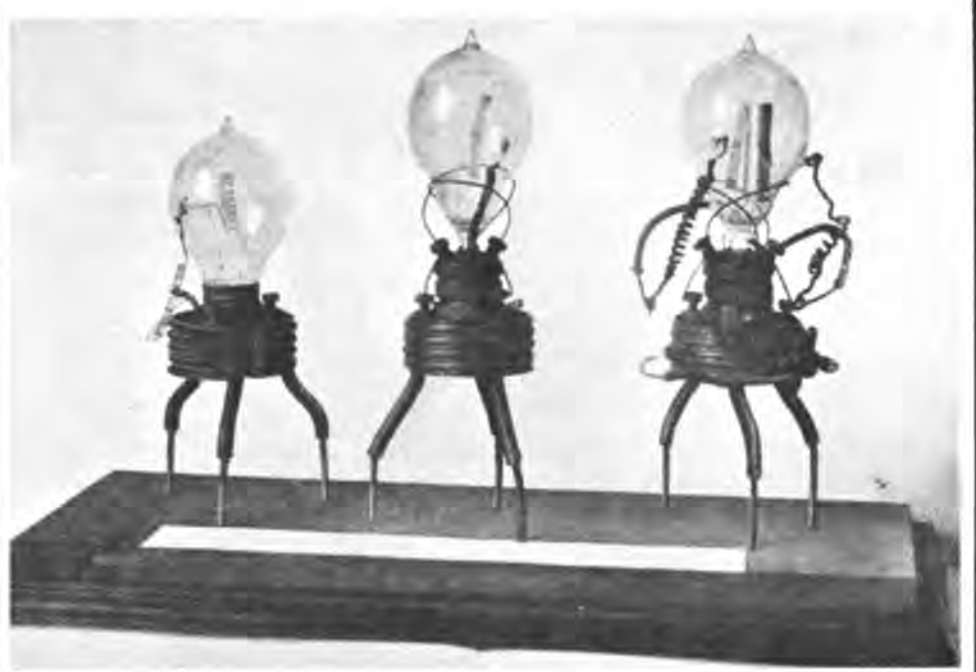
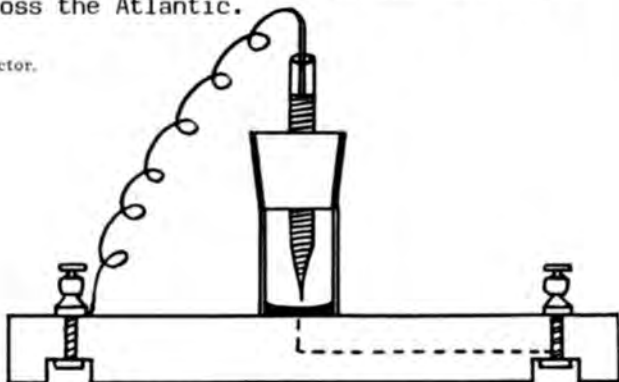


Method of connecting a Fleming valve in a radio receiving circuit.

Fleming's invention was patented in 1904 and went automatically to the Marconi Company under the terms of his contract as a consultant. The Fleming Valve, not very satisfactory in itself as a detector, was nevertheless the forerunner of all modern electronic tubes. But it was not until Dr. Lee de Forest added a third element, or grid, to the Fleming two-element valve, and after Arnold and Langmuir found that a high vacuum was necessary in the glass envelope, that the first practical tube as a radio detector and amplifier came into being.

Visitors to some of the Wireless Museums scattered throughout the United States can still gaze in bewildered wonderment at some of the first coherers and valves there on display. First honors still go to the coherer, the little glass tube containing metallic filings connected between aerial and ground and which, incredibly, was able to respond to the discharge of a powerful spark more than 2,000 miles away. Yet this coherer, a telephone receiver, a battery, and an aerial and a ground, were all that were used by Marconi on that fateful day of December 12, 1901, to receive his first wireless telegraph signal flashed across the Atlantic.

Liquid Detector.



Fleming Valves.

PHOTOGRAPH OF THE ORIGINAL OSCILLATION VALVES USED BY DR. J. A. FLEMING, F.R.S., IN OCTOBER, 1904, AS RECTIFIERS AND DETECTORS OF THE HIGH-FREQUENCY OSCILLATIONS EMPLOYED IN WIRELESS TELEGRAPHY.



DR. J. A. FLEMING, F.R.S.

**Fleming, Dr. John Ambrose, F.R.S.**—Born in Lancaster on November 29th, 1849. Educated at University College School, London; University College; the Royal School of Mines; and St. John's College, Cambridge; Hughes Gold Medallist of the Royal Society. In 1880 he was appointed demonstrator in mechanics and applied-science to the University of Cambridge, and when University College, Nottingham, was opened in 1881, Dr. Fleming was selected as first occupant of the chair of mathematics and physics. A little later on he resigned this professorship to remove to London. On the creation of the Pender Chair of Electrical Engineering in 1885, the Council of the University College, London, appointed Dr. Fleming first occupant of that chair. After the incorporation of the University College with the University of London the title of Dr. Fleming's chair was changed to that of Pender Professor in the University of London. In 1912 Dr. Fleming was appointed University Professor of Electrical Engineering in the University of London. He has been a large contributor to scientific literature and research, and is the author of numerous well-known text-books, amongst which may be mentioned particularly his books on wireless telegraphy. He has given many courses of lectures at the Royal Society of Arts and the Royal Institution on wireless telegraphy and other subjects. His inventions and writings have assisted greatly the development of radiotelegraphy. For his scientific researches he has been twice awarded the Institution Premium of the Institution of Electrical Engineers, and also a silver medal of the Royal Society of Arts.

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**DICKOW**

**WIRELESS HISTORY**

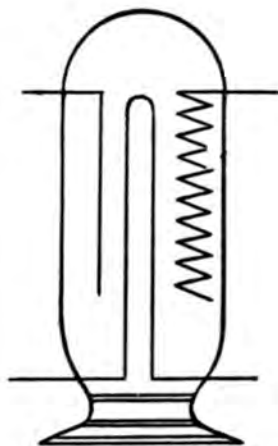
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**Wireless in the West**

Even before Marconi arrived in New York to supervise the installation of his apparatus for reporting the Columbia-Shamrock yacht races to the New York Herald, his discovery had already been put to use in San Francisco. The City by the Golden Gate was one of the first in America to pursue the works of Marconi, and from its shores came many of the prominent figures who helped write the pages of early wireless history.

the Litton Rectifier and Triode, the Eimac Tube by Eitel-McCullough, the Klystron by the Varian Brothers, and many other innovations by a long list of pioneers.

From the San Francisco Bay Area and its jutting Peninsula came such world-famed contributions as the de Forest Audion, the Mackay Radio and Federal Telegraphy Company's Arc Transmitter, the Electro-Dynamic Speaker by Magnavox, The Moorhead Tube, the Jennings Vacuum Capacitor, the Heintz Gammatron,



De Forest Audion Detector.

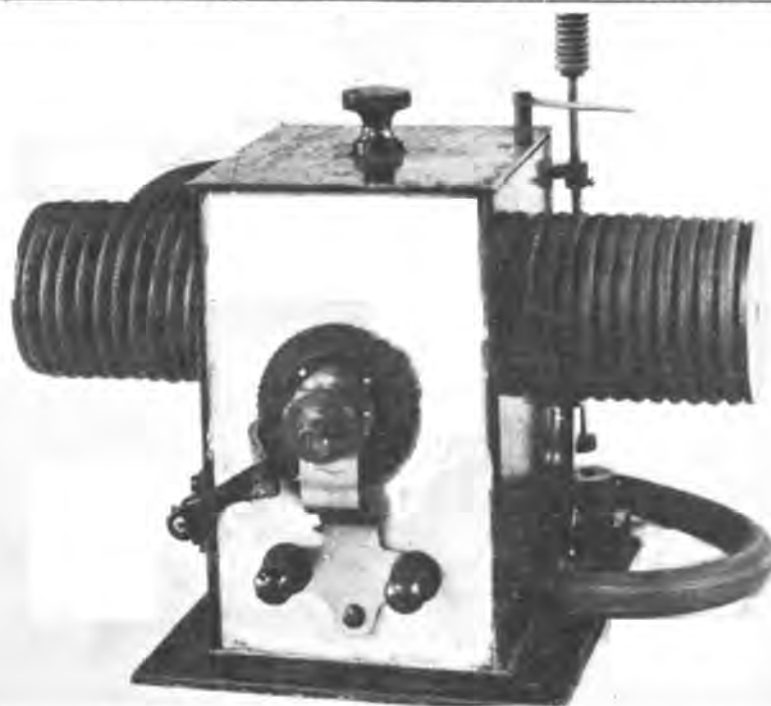
A San Francisco morning newspaper, the Call, was first to foresee the newsworthiness of Marconi's contribution and ordered a team of electrical and telegraph men to conduct wireless experiments in various parts of the city in July, 1899. The first effort to communicate without wires came when an attempt was made to send a message from the Call Building (later named the Claus Spreckels Building) at Third and Market Streets, to a receiving station on Telegraph Hill. An induction coil of the Tesla type was used for a transmitter, a Branly coherer for the receiver. But the electrical interference from the Market Street trolley cars was so intense that the effort proved unsuccessful.

The Call then moved its experiments to the San Francisco Ocean Beach, with the transmitter installed in the Cliff House eight miles away, again without success. Then transmitting and receiving stations were erected at points four miles apart along the beach, and with a Ruhmkorff four-inch spark coil replacing the Tesla Coil, it was at last possible to send signals over this distance.

Learning that a new vessel built in Portland, Oregon and equipped with a dynamo to supply electric power had been recently stationed at sea to serve as the San Francisco Lightship some 15 miles from shore, the Call was granted permission to conduct a series of tests between the ship and the Cliff House. The event was duly recorded in the ship's logbook by its first officer. There was no transmitter at the Cliff House - only a receiver. The ship's log shows that the tug Reliance, which went out to service the Lightship, reported on several occasions that wireless signals had been received at the Cliff House.

Aboard the lightship each day at 5 p.m. the aerial was taken down and stowed below decks for the night, so as to prevent it from interfering with the rays of the ship's lights. This aerial (the term antenna had not yet come into use) was always lowered before dinner.

In "My San Francisco Story of the Waterfront and the Wireless," Commander Richard Johnstone states that the arrival of the U.S. Army Transport Sherman was reported by wireless in a message from the San Francisco Lightship, and that this sentinel of the sea was the first vessel ever equipped by the U.S. Lighthouse Service.



Historical Photograph of the first Poulsen Arc brought to America by C. F. Elwell, Edwin S. Pridham, and Peter L. Jensen in 1909. (Dickow Collection)



EDWIN S. PRIDHAM - 1881 - 1963

One of the four early scientists who helped bring the Poulsen Arc to America. Together with Peter L. Jensen, he is also the co-inventor of the electrodynamic loudspeaker and a founder of the Magnavox Company. [Dickow Collection]



R-2 Magnavox Radio with 18-inch Horn

R-2 Magnavox

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(Continued from Page 12)

WIRES WITHOUT WIRES

The true inventor labours in an attic, lives chiefly upon buns, sells his watch to obtain chemicals, and finally, after desperate privation, succeeds in making a gigantic fortune for other people. Guglielmo Marconi invented in comfort, retained any small articles of jewellery in his possession, and never starved for more than five hours at a time. Therefore he cannot expect our sympathy as an inventor, though he excites our wonder as an electrician.

He is a quiet man with a slow, deliberate manner of speech, and a shape of head which suggests an unusual brain. He has Irish blood in his veins, for his maternal grandfather, Andrew Jameson, married a daughter to a Marconi of Bologna, from which union was born Guglielmo. Guglielmo, I may mention, is the Italian for Bill.

Bill was educated at Leghorn under Professor Rosa, and afterwards at Bologna University. He first attempted to send wires without wires upon his father's land to the farm of neighbours. . . . From Italy he came to England, testing his instruments between Penarth and Weston. . . .

What has been the result the world knows. His system is used exclusively at Lloyd's and in the British and Italian Navies. It has made the Atlantic still less endurable for tired brains by providing liners with a daily paper. He has alarmed the Chinese with his devices at Peking and Tien-Tsin, forcing them to compose special prayers against foreign devils and all their works. He has been the cause of a petition from the Cornish fisherfolk, who suggested that the Government should put him down before his electrical sparks ruined the weather. Lastly, to fill the cup of his SINS, he has sent messages across the Atlantic. . . .

VANITY FAIR, 1905



Marconi Returns to Europe

While reporting the Columbia-Shamrock yacht races, Marconi also incorporated the Marconi Company of America. He arranged a series of demonstrations for the Army and the Navy but was unable to personally complete the tests because he was suddenly recalled by the British Government to help prepare a number of wireless installations to be sent to South Africa for the Boer War. The Marconi Company did not succeed in making sales to our armed forces because of undue demands, such as excessive royalties and high prices for its apparatus.

The U.S. Army then conducted some experiments of its own and, in December, 1900, established stations for communication between Fort Mason in San Francisco and Fort Alcatraz in the Bay, after a storm had severed the submarine cable between these points.

As a result of Marconi's visit to America, the United States Weather Bureau also took heed of his discovery. In September 1902, it let a contract for a station on the Farallon Islands to connect with Point Reyes. Vessels were notified that the

range of this station was only one mile; in order to call the wireless operator, a ship was ordered to give five blasts on her whistle. Then in February, 1905, the S.S. South Portland put into nearby Drake's Bay to escape a 60-mile gale, and picked up a new cable from the Farallon Islands to Point Reyes after only twelve days of service. The captain ordered the cable cut to save the ship's anchor.

One other result of Marconi's visit to America was an attempt to link together the Islands of the Hawaiian group. A Honolulu engineering firm, Catton, Neill and Company, had contemplated laying cables between the Islands, but upon learning of Marconi's presence in New York, they sent their representative, Frederick J. Cross, to meet with Marconi and negotiated a contract for the installation of seven wireless stations in Hawaii. The stations performed poorly. Arthur Gray was sent to Honolulu in 1900 with additional apparatus. On August 3, 1901, the Marconi Company filed suit for non-payment of moneys due under the contract. And on October 16, 1902, the wireless operators went on strike, the first of its kind ever called in world history.

Charges of Wireless Monopoly

At the first International Conference for wireless telegraphy held in Berlin in 1903, the Reich Post Office charged the British with an attempt to monopolize the new industry and refusing to communicate with stations equipped with German apparatus. England and Italy did not agree, and the conference adjourned without resolving the issue.

At a subsequent conference in 1906, also held in Berlin, the agenda again contained a similar charge. "Ships and coastal stations equipped by Marconi's Wireless Telegraphy Company refuse to receive and retransmit radio telegrams from different radio equipments, particularly those operating by the Telefunken system; although 27 states sign the International Radio Convention the Marconi monopoly is still not broken," says the German historian, Erwin Muller-Fischer in his Telefunken Chronological Table. He adds that the Convention was not ratified by the United States, and by England and Italy only with reservations.

At this time, on German initiative, says Fischer, the Conference in Berlin adopted the marine distress signal later (incorrectly) called the SOS. This signal consisted of an unbroken series of three dots three dashes three dots, with no alphabetical interpretations, yet being easily recognizable by reason of its peculiar formation. The circumstances surrounding the adoption of the new distress call are covered in a later chapter.

(Continued on Page 14)



" My chief trouble was that the idea was so elementary, so simple in logic, that it seemed difficult for me to believe that no one else had thought of putting it into practice. "

G. Marconi

CHRONOLOGY OF GUGLIELMO MARCONI

- |   |  |  |
|---|--|--|
| 1874 Born in Bologna, Italy on 25 April   | 1905 Marries the Hon. Beatrice O'Brien   | 1923 Birth of short-wave Beam system                                     |
| 1894 First experiments with Hertzian waves  | 1906 Invents disc discharger   | 1927 Opening of Beam system links British Empire                         |
| 1895 Transmits wireless signals over one mile   | 1907 Commercial transatlantic wireless service inaugurated between Table Head, N.S. and Clifden, Ireland | Marriage to Beatrice is annulled   |
| 1896 Moves to London  | 1908 Birth of daughter, Degna  | Marries Cristina Bezzi-Scali   |
| First formal demonstration of wireless given to British Post Office   | 1909 Awarded the Nobel Prize for Physics   | Resigns as Chairman of the Marconi Company                               |
| Granted world's first radio patent  | 1910 Birth of son, Giulio  | 1928 Appointed Chairman of the National Research Council of Italy        |
| 1897 Registers Wireless Telegraph and Signal Co., Ltd   | 1912 Automobile accident results in loss of right eye  | 1929 Hereditary title of <i>Marchese</i> conferred by King of Italy      |
| 1898 First private wireless . . . installed for Queen Victoria  | <i>Titanic</i> disaster  | 1930 Birth of daughter, Elettra  |
| First commercial message . . . sent for Lord Kelvin   | 1914 Receives Knight Grand Cross of the Royal Victorian Order from King George V of England              | Becomes President of the Italian Academy                                 |
| First wireless journalism . . . Kingstown Regatta   | Appointed Italian Senator  | Lighting of Sydney, Australia Town Hall from <i>Elettra</i>              |
| 1899 English Channel experiments prove curvature of earth is not an obstacle to wireless transmission                     | 1916 Birth of daughter, Gioia  | 1931 Lighting of statue of Christ in Rio de Janeiro from Rome            |
| Sails to New York to report America's Cup   | Begins short wave experiments with C.S. Franklin   | 1932 Installs ultra-high-frequency radio telephone link for Pope Pius XI |
| Granted patent No. 7777 for tuning apparatus  | 1917 Member of Italian goodwill mission to U.S.  | 1933 Sails on world tour   |
| 1901 12 December, first transatlantic signal sent from Poldhu, Cornwall to St. John's, Newfoundland                       | 1919 Appointed delegate from Italy to Paris Peace Conference   | 1937 Dies in Rome on 20 July after series of heart attacks               |
| 1902 S.S. <i>Philadelphia</i> tests confirm transatlantic signal and reveal night reception to be much stronger than day. | Acquires 700-ton steam yacht, <i>Elettra</i>   |  |
| Invents magnetic detector ("Maggie")  | 1920 Successful demonstration of unmanned auto-alarm for ships   |  |

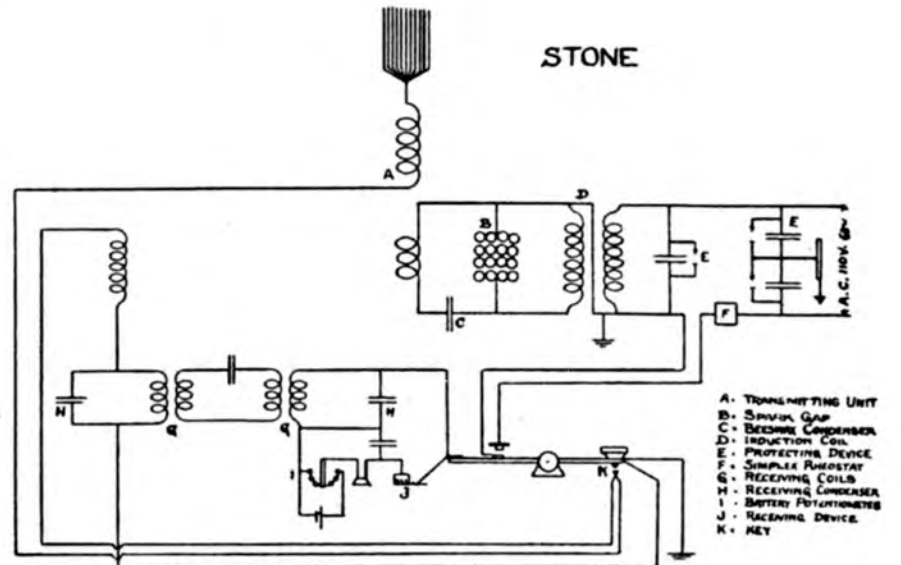
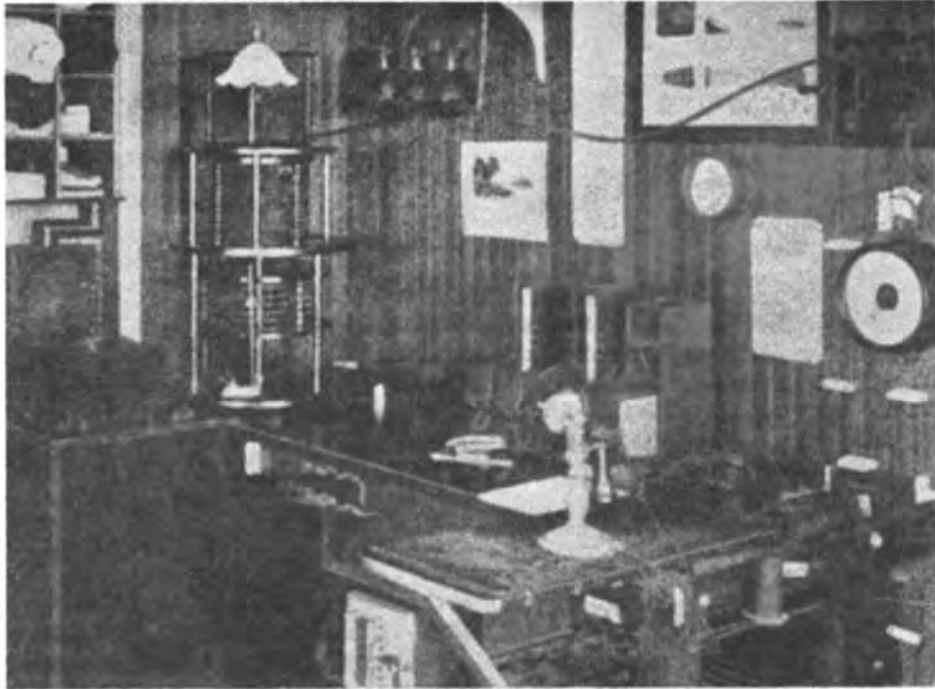




# EARLY WIRELESS TELEGRAPH SYSTEMS

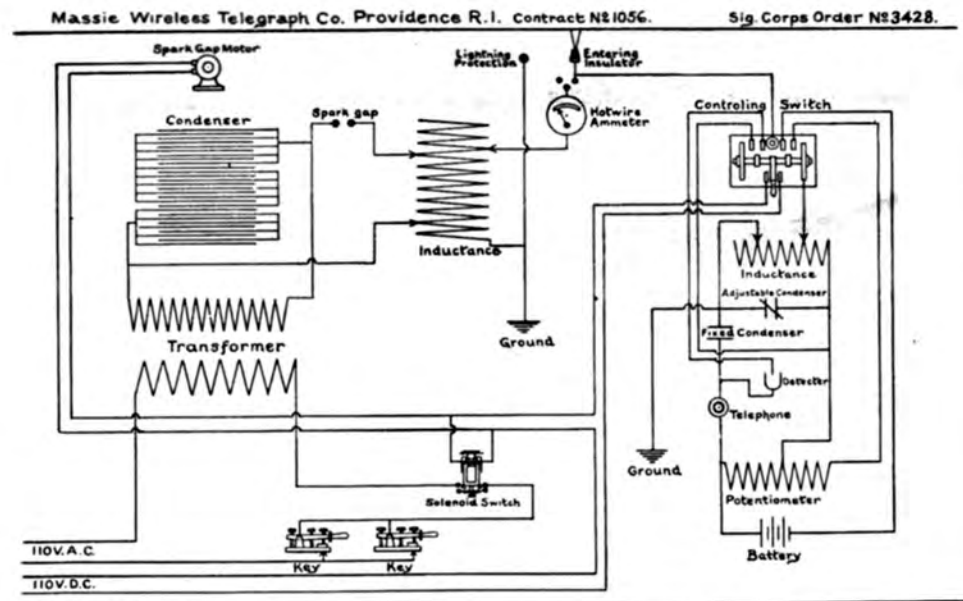
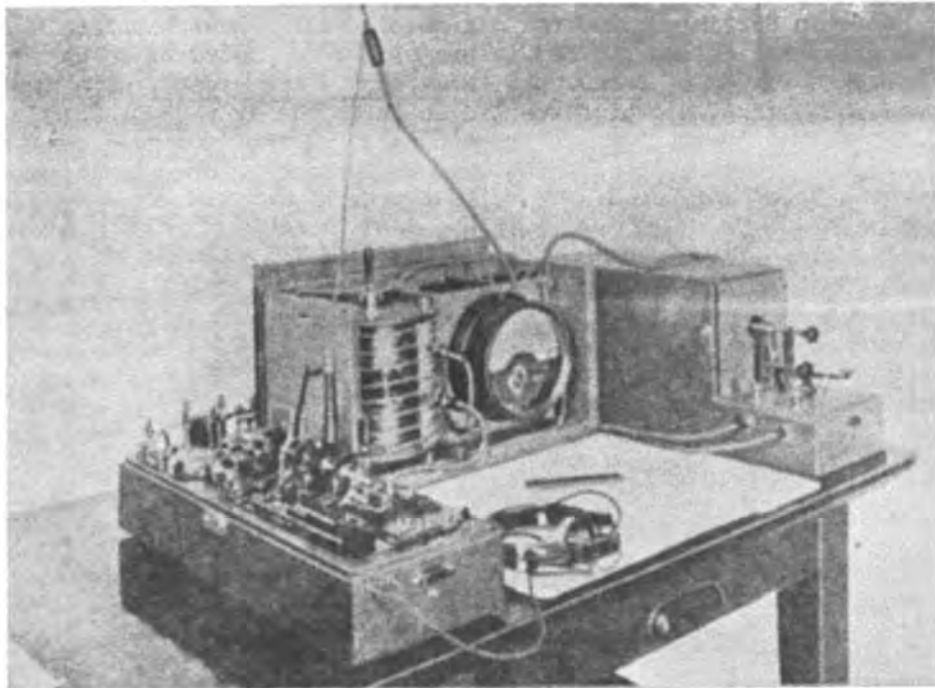
## STONE

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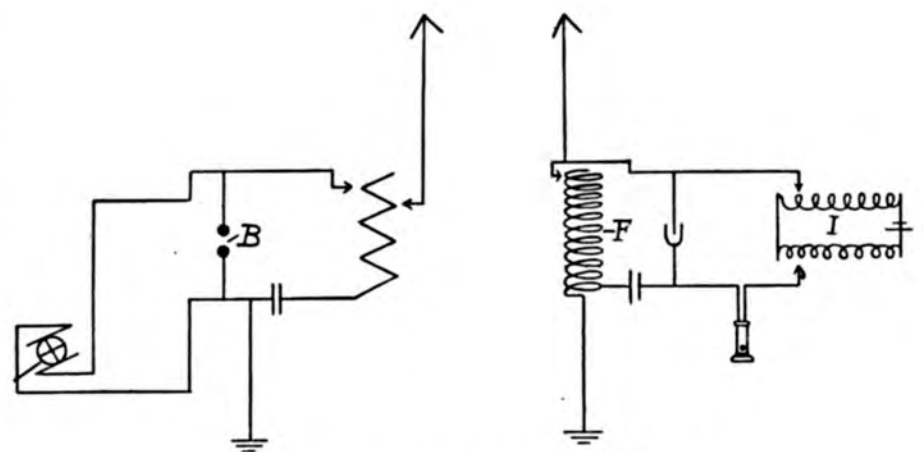
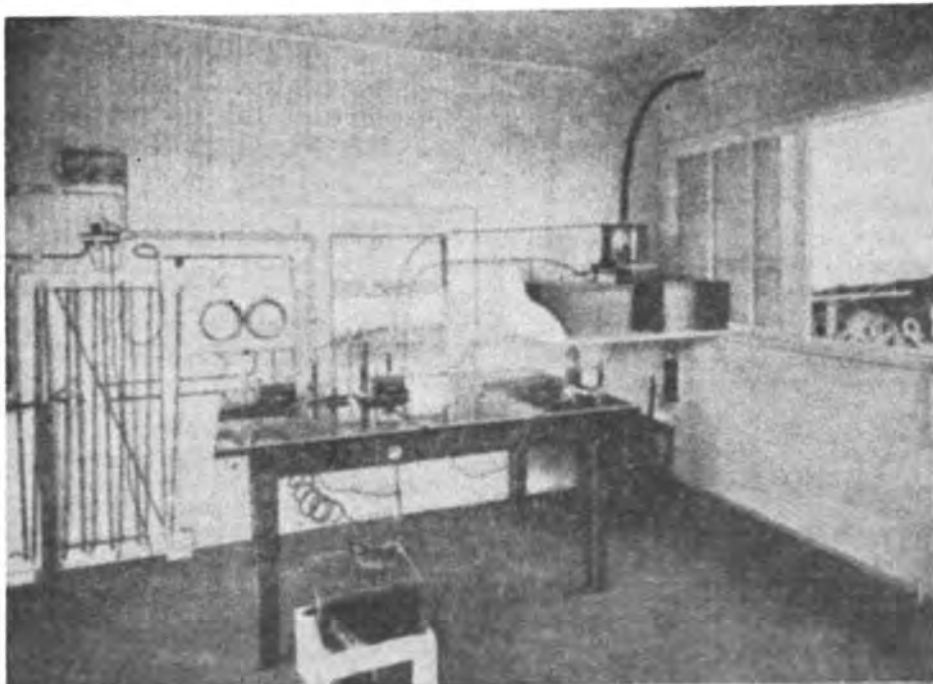
Complete Sending and Receiving Circuit of the Stone System.

## MASSIE



Massie Wireless Telegraph Set.

## FESSENDEN



Fessenden Sending and Receiving Circuit.

(Continued on Page 15)



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## The Fessenden System



Reginald Aubrey Fessenden

Professor Reginald A. Fessenden was among the first to follow in Marconi's footsteps. His interest in wireless telegraphy began while he was in the employ of the U.S. Weather Bureau. Early patents on dynamometer detectors for electric waves were issued to him in 1899.

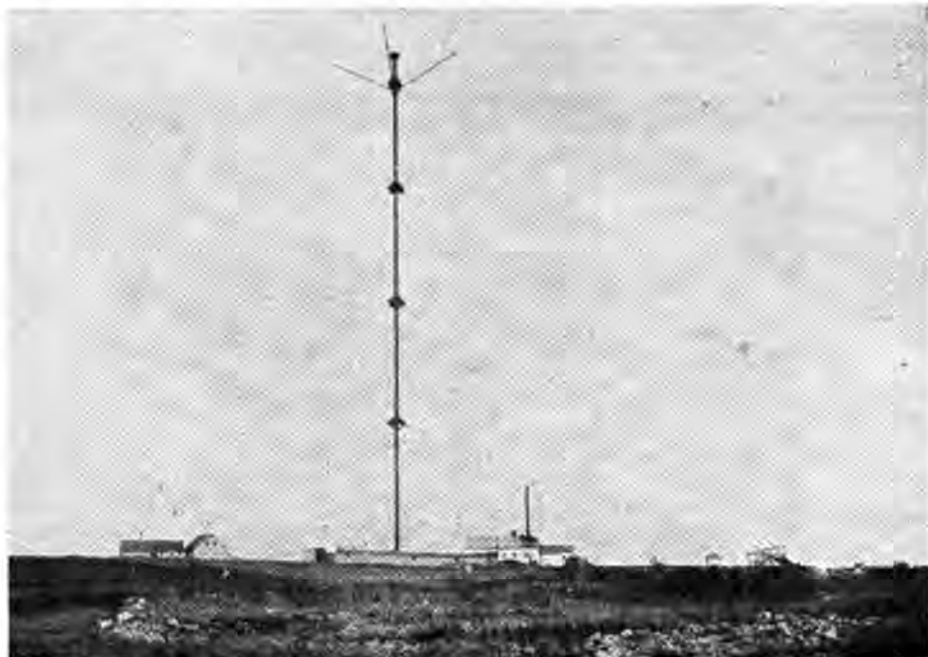
In 1902 he founded a wireless communication company of his own, with a circuit between Collingswood and Jersey City, New Jersey. It operated satisfactorily with the exception of such periods when static and other atmospheric disturbances made communication unreliable. Another circuit between New York and Philadelphia was abandoned in 1903.

Fessenden was financed by two Pittsburgh bankers, Messrs. Given and Walker, who named the company the National Electric Signaling Company (NESCO). Fessenden then became interested in wireless telephony and his first experiments were with spark arrangements using very high spark group frequencies. He was an accomplished inventor and developed a number of ingenious transmitting arrangements. He was the inventor of a hot-wire type detector called the Barretter, which he patented in June, 1902. In 1903, he secured a patent on his electrolytic detector, filing his application just before the German, H. Schloemilch, described an identical device that same year. F.K. Vreeland, who worked for Fessenden, violently claimed that this detector was his invention, and that it was stolen from him by Fessenden. Judge Wheeler of the U.S. Circuit Court ruled in 1905 that Vreeland was an employee of the Fessenden Company and was only carrying out instructions at the time the detector was developed.

In August, 1902, Fessenden patented his first concept of the heterodyne principle of reception, although it did not come into practical operation until many years thereafter. It was one of the few fundamental patents in the wireless field and marks Fessenden as one of the earliest to possess scientific basic knowledge of the subject. Fessenden was also an early proponent of continuous waves, which did not come into being until some years later.

When Fessenden put his first wireless telephone system into operation in 1902, he was able to transmit over a distance of only one mile. But in 1903 he gave a 25-mile demonstration in Washington, using an arc generator during these tests.

Aware of Nicola Tesla's experiments with high-frequency alternators, circa 1892, he designed and built one of these machines - and transmitted speech from his famous Brandt Rock Station in Massachusetts to Plymouth on several occasions. His signals were overheard at his station in Machrahanish, Scotland.



Intent upon improving his alternator, he solicited the aid of General Electric Company who assigned E.W.F. Alexanderson to this project. The first formal order for an alternator was placed with G.E. on March 9, 1909.

Alexanderson expressed immediate interest in the alternator. Eventually he built a 200-kilowatt machine in 1918, following a successful 50-kilowatt machine built the year before. Fessenden's first alternator in 1906 was made by General Electric Company but proved its inability to operate at a frequency above 10,000 cycles. Fessenden scrapped all but the pole pieces of the alternator, then designed a new armature, and was finally able to get 1/2-kilowatt of power at 80,000 cycles.

Fessenden's Company, NESCO, developed the finest wireless sets then available for use on shipboard. Around 1909, the U.S. Navy announced proposals for a high-power station. The award went to NESCO, resulting in the 100-kilowatt transmitter for Arlington, Virginia, which was completed in 1912. At about this same time, the United Fruit Company adopted the Fessenden system for its ships in the gulf of Mexico.

Towards the end of 1910, Fessenden ran into trouble with his financial backers and instituted litigation proceedings. The company went into bankruptcy. The Brandt Rock station was closed down and most of its employees discharged. Messrs. Given and Walker carried on; they were the owners of the Fessenden patents. The Company was sold in later years to Westinghouse Electric and Mfg. Co., but Given and Walker retained the rights to recover damages for use of the Fessenden patents by the U.S. Navy before and during World War One. A settlement was reached in 1940 with a substantial award by the U.S. Court of Claims.

Unable to continue his activities in wireless communication after losing his fight with Given and Walker, Fessenden devoted his time to research in underwater sound equipment. This resulted in the development of the underwater or submarine sound oscillator, and the founding of the Submarine Signalling Company which supplied the equipment and installed it in vessels of the Navy for years thereafter. Thus was underwater sound communication conducted between ships for the first time.

Fessenden was a self-centered, egotistical man - erratic and badly mannered. He seemed always to be in difficulty. One episode serves as an example: He was awarded the Medal of Honor by the Institute of Radio Engineers in 1921. Having heard that one such award to Marconi was a medal made of solid gold, Fessenden had his own medal assayed and found it not to be the same as that previously awarded to Marconi. Believing that he had been denied a medal of solid gold, he returned it to the Institute, asking that his name be stricken from the list. G.W. Pickard, a close friend, immediately made an investigation and found there had been no discrimination in the quality of the metal used for the Fessenden award. Fessenden then took his medal back.

## Massie Wireless Telegraph Company

Marconi's early competitor, Massie Wireless Telegraph Company, had as one of its first employees Arthur A. Isbell, a former Morse telegrapher.

At Point Judith, Rhode Island, Isbell equipped the new S.S. President with Massie apparatus and then accompanied her as wireless operator on her trip around Cape Horn, then up the West Coast as far north as Nome, Alaska.

Isbell was appointed Pacific Coast Manager for the Massie Company and established a station at the entrance to Fort Miley, near the ocean beach of San Francisco, during the latter part of 1907. Massie found itself in financial straits soon thereafter, causing Isbell to seek employment elsewhere.

In the Hawaiian Islands, C.J. Hutchinson had obtained control of the local old Wireless Telegraph Company, Ltd. He came to San Francisco where he induced Isbell to build a powerful station at Kahuku, Oahu. Hutchins brought with him an old family friend, Jack Balch, an ex-mining engineer in poor health and who was assigned the task of procuring supplies for Isbell's project. On his arrival in Honolulu, Isbell took residence with the Japanese on a sugar plantation at Kahuku.

In 1913 the station was moved to another location to make room for the 300-kilowatt high-power Marconi plant, which was to become a link between Funabashi, Japan, and Bolinas, California.

Isbell and Balch were incompatible and they became sworn enemies, with Isbell leaving the Island incognito to accept an appointment as a salesman for United Wireless Telegraph Company. He then traveled between San Francisco and New Zealand, where he sold a quantity of United apparatus to newly-formed wireless companies "down under."

(Continued on Page 16)



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It is interesting to note that six years earlier, in 1907, Isbell was sued by the United Company for criminal libel because he had issued a signed statement that the United officials were liars, cut-throats, and thieves. A few years later some of these officials were given penitentiary sentences.

## THIS YOU ?



### Early Wireless Stations and Operators

One of America's early commercial wireless operators was Timothy Furlong who conducted a series of experiments in San Francisco during 1903 between Telegraph Hill and Bernal Heights, a distance of five miles. For his receiving detector he used two carbons and a needle. At this same time, the Gray Brothers were using Telegraph Hill as a rock quarry, and with each discharge of dynamite, the blasting would dislodge the needle of the detector.

Another of the early pioneers was Robert Marriott, one of the founders of the Institute of Radio Engineers in 1912. In 1904 he built a wireless system for operation between Avalon, on Catalina Island, and San Pedro on the mainland near Los Angeles. The installation was for the Continental Wireless Telegraph and Telephone Co. of Denver. The venture was highly successful and remained in use until replaced by submarine cables, being operated variously by the United States Navy during World War One, and by the Bell Telephone System when telephony was introduced in 1921 over this circuit.

Marriott's first equipment consisted of a high-pitched commutator interrupter and a microphonic type of detector consisting of a blunt metal point in contact with a Prince Albert tobacco can that had first been oxidized by burning. This ultra-sensitive device was mounted on a concrete pier erected on bedrock. It was necessary to shut down the engine generator for the transmitter when signals were being received. Marriott relates the story that one of his first receptions was the report of a prize fight, which he posted on the bulletin board. No one would believe it, even after the daily newspapers arrived by ship, claiming that the news was flashed by light-blinker, or smuggled in on a ship the night before. The system was not fully accepted until two men robbed the Avalon Hotel early one morning and escaped to the mainland by boat. They were apprehended by the police at the dock in San Pedro in answer to a summons by wireless.

The year 1904 also witnessed the completion of a chain of U.S. Navy radio stations, most of which were built in the vicinity of lighthouses so that their transmissions would be primarily over water. This system constituted a highly successful relay network from Canada to the Mexican border, day and night. Lieutenant-Commander George Cook Sweet and R.B. Stuart opened the Mare Island station on March 30, 1904. Then came a station on Yerba Buena Island in San Francisco Bay on May 5, 1904. Next came the Farallon Island station, installed by George Hanscom, which began operations on December 9, 1904. Point Arguello followed, with a Massie transmitter, on February 6, 1906. Then Point Loma, at San Diego on May 12, 1906. Table Bluffs opened on October 23, 1906 followed in quick succession by Cape Blanco, North Bend, and Tatoosh Island off Cape Flattery. Next came the Alaska system, built by George Hanscom, after it had first been planned by Lieut. E.H. Dodd. A station in Sitka was opened in 1907, and one in Cordova in 1908.



## Commercial Development

The American de Forest Wireless Telegraph Company came to San Francisco from New York in 1905 and built a station on the Palace Hotel, a noted city landmark. The call letters of PH were appropriately assigned, being the initials of the hotel itself. In years to come, this call became world-famed, known to every wireless operator along the Coast and to those who sailed the Pacific Ocean. World records for transmission and reception were frequently broken, as will be related later.

The original PH station had a two-wire antenna strung from a pole on the Grand Hotel on the east side of New Montgomery Street to a pole on the hotel proper, and finally to the Masonic Temple on the north side of Market Street.

Also in 1905, the Pacific Wireless Telegraph Company established two 1,000-watt spark stations connecting the Goldberg Bowen Building in Oakland with the Merchants Exchange Building on California Street in San Francisco. At the latter location the antenna was supported on a 100-ft. tower on the roof. No signals got through, the messages being carried back and forth on the San Francisco-Oakland ferry boats by messenger boys. Thus were the stockholders deceived.

The stations were destroyed by the San Francisco earthquake and fire in 1906, and the following year the company was re-incorporated under the name of Occidental and Oriental Wireless Telegraph Company. A new station was built on public school property on the northeast corner of Taylor and Vallejo Streets in San Francisco, retaining the original call letters PH. Tim Furlong was the first duly assigned wireless operator. He stood his watch faithfully each day for an entire year without hearing so much as a single ship with which to communicate.

The station was taken over by the United Wireless Telegraph Company on March 1, 1908. An effort was made by United to sell its system to ships of the Standard Oil fleet, but in fear that the sparks from the wireless transmitter or aerial might set the ships afire, Standard Oil at first demurred. Eventually permission was granted to equip one barge, Standard Oil No. 3, and with Tim Furlong formerly of PH aboard as the first sea-going wireless operator on the Pacific, she sailed for Seattle in tow of the tug Atlas, leaving San Francisco March 19. Furlong was relieved of his shore post by J.O. Watkins, another of the first pioneers and who attained the age of almost 90 years before his death in San Jose in 1967.

Again, in 1905, the Pacific Wireless Telegraph Company erected a station atop Mt. Tamalpais across the Golden Gate with the intention of inaugurating a wireless link to Honolulu. But the farthest distance reached was the Farallon Islands, less than thirty miles away. Hjalmar Lundell, a master mechanic for the company, was in charge of installation. The station had two wooden towers, 300 feet high, an imposing sight visible for many miles in all directions. These towers withstood the violent San Francisco earthquake but fell during a windstorm in December, 1906. It was found later that a number of the guy anchor-rods had been cut with a hacksaw.

When the towers fell, so did the company. San Francisco was a hotbed of wireless promotion, with newcomers taking over where others had failed. The McCarty Wireless Telephone Company conducted its first experiments in 1902 and continued in operation until its facilities were destroyed in the disastrous earthquake and fire. Massie Wireless was another of the short-lived companies, with only United Wireless Telegraph Company remaining in the fold until it was eventually absorbed by Marconi.



New Marconigram Sign Displayed in the Telegraph Offices





# A RECON PATROL

BY—BILL WILLMOT—K4TF

Reconnaissance patrols in the infantry are fairly routine. In combat operations, they occur daily and are usually performed by rifle company troops. However, occasionally, these patrols are augmented by specialists in other fields to accomplish certain missions. Such a patrol occurred in late May of 1945.

At this point in time, the Japanese had lost the last major island in the Philippines, namely, Mindanao. Unfortunately, there were still a number of the Emperor's soldiers that had to be convinced of this fact.

The 24th Infantry Division had driven across the island, some 150 miles in 15 days, after landings at Malabang and Prang. Up to this time, casualties had been light but cleanup operations would change that.

Information was needed on enemy strength in the area of Tugbok. The Japanese were well entrenched in the area and able to deliver heavy fire power - that much we did know.

Headquarters determined that a reconnaissance patrol had to penetrate through to the Tugbok area and find out what size force we were going to have to contend with. The mission was given to one of the line companies in our 3rd Battalion. The patrol was to obtain the needed information and get it back as quickly as possible. There was considerable concern as to whether a patrol could get through and get back with the information if they did reach the objective.

A decision was reached that included sending an Intelligence man and a radio operator along. In this way, once the objective was reached, the information could be radioed back. A request went out for volunteer radio operators. When none was forthcoming, our radio chief, had each operator draw straws. This author drew the short one.

The patrol was to consist of six men. The line company would provide a lieutenant who would be responsible for the patrol, a line sergeant and two scouts. Battalion headquarters would provide the Intelligence sergeant and the radio operator. The plan was for the patrol to try to go out and get back the same day. Recognizing the need for secrecy and the type of jungle terrain to be navigated, no one believed that it could be done in a single day. Therefore, the patrol was issued two days rations, K rations for the first day and an emergency D ration for the second day - should it be needed.

The patrol moved out just before daylight, under the cover of darkness to give us a chance to get away from the area where the Japs knew we were concentrated. Fortunately, the thick jungle provided good cover and concealment was not too difficult. Movement however was slowed considerably by the thick vegetation.

During the morning hours, we almost walked into one Jap patrol and a little later almost walked into an ambush. Thanks to the alertness of our scouts, we managed to get by without being spotted. By mid-afternoon, we had still not reached our destination. The lieutenant was anxious to radio back what information we had gathered up to this time and to let them know that we were continuing. To prevent giving away our position or destination, we spent another hour looking for a position that was relatively safe from which we could make a transmission.

We finally found a fairly good location where it looked like we might have reasonable propagation. We had a new radio set which was supposed to have a range of about 15 miles. However, jungle growth can reduce the range considerably. In any event, we made contact with home base on our first call. They had been anxiously listening for us.

During these short transmissions, we could hear heterodynes on the frequency and our immediate concern was that the Japs might be putting direction finders on us. We promptly secured and hi-tailed it out of the area.

We finally reached our objective about five o'clock in the afternoon. As we approached a slight knoll, we could see a clearing just beyond, which was obviously an assembly or staging area for a fairly large force. The lieutenant estimated there to be about 100 to 150 Japs in the area. These troops felt quite safe where they were since it was obvious that their security was very light indeed. Their sentries were milling about like they didn't have a care in the world.

The troops in the area were quite relaxed and doing normal chores. One was shaving, a couple were cleaning weapons and the others we could see were sunbathing or sitting in groups chatting. The only weapons in evidence were those being carried by the sentries.

The knoll from which we were observing was an excellent vantage point. When the Japs had cleared out the area for their camp, they threw all the scrub trees, vines, etc., up on the knoll. This made it almost impossible for them to see us but it gave us a perfect location from which to watch them.

I have no recollection of how long we observed the Japs. I'm sure it was only a few minutes although at the time it seemed like hours. Finally, the lieutenant signaled for us to withdraw. By the time we were a safe distance away, it was already starting to get dark. We knew that there was no way that we could make it back that night and therefore we would have to spend it behind the Jap lines. The information that we had obtained however was the important factor and the reason that we were out in the first place. Therefore, it was essential that the information be radioed back. We finally found a spot where we felt we could make our transmissions safely and proceeded to do so. This time, the Japs were on frequency and began jamming us. Fortunately, we got our information through before the jamming started. Not wishing to be found by direction finders or mortar shells, we promptly closed down and moved out.

As darkness closed in on us, we found a site that seemed ideal to spend the night. It was along a river bank which would provide protection on one side of us. The jungle was extremely thick and it would be impossible for anyone to penetrate it without making some noise. Our last orders were that there was to be no talking or smoking.

Sometime during the night a Japanese roving patrol passed by us to the south. It was impossible to determine just how far away they were as night sounds in the jungle are very misleading. The rest of the night was quiet except for the normal jungle sounds.

The remainder of the patrol was routine and we finally reached our unit just before supper. They were happy to see us but not half as happy as we were to see them. We later learned that the information we obtained was much better than they had hoped for. However, all of the credit should go to the lieutenant. It was his skillful leadership and knowledge that got us to the objective and safely back. Most regrettably, however, he was killed two days later leading an attack into the area where we had made our patrol.



# POPULAR ELECTRICITY

IN PLAIN ENGLISH

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## Ye Olde Laws of Ohm

The three men honored in the following two pages were among the 'avante garde' of the scientists, physicists, mathematicians and scholars of the 17 and 18th centuries, whose theories and experiments lead in a cumulative way to the discovery of how electricity could be made the servant of mankind. It is of course perhaps the greatest benefactor that has ever blessed mankind.

It was George Simon Ohm who in his experiments found that electric current in a conductor is directly proportional to the difference of 'potentials' between its ends. He showed that with the same difference of potentials, the current in different conductors is inversely proportional to the internal resistance of the conductor, or circuit. Thus he gave to the electrical world a Golden Rule -- Ohm's Law:

"A current flowing in any closed circuit is proportional to the force or voltage and inversely proportional to the resistance of the wire."

The formula is written:  $I = E/R$

Alexander Volta and Andre Marie Ampere both lived in an early age of fantasy with magnetic and electrical phenomena. Their contributions, as men of science, led to honoring these men by naming the other components of Ohm's equations in his formula for them: IE: Resistance (R) is called Ohms; Voltage or electromotive force [EMF] using the symbol "E" in the equation and the unit of Current Strength [ I ] Amperes for Andre Marie Ampere. The formula has endured for the past century. (WAB)

## Ancient Egyptian Drama ?

POPULAR ELECTRICITY



HAD THE ANCIENT EGYPTIANS UNDERSTOOD ELECTRICITY.



### GEORGE SIMON OHM

The man who by independent discovery and announcement of a law in Nature's observed operations laid one of the foundation stones of modern electrical science and achievement

What is Ohm's law? Why is the unit of electrical resistance called the Ohm? These questions are best answered by a brief sketch of the career and work of George Simon Ohm, who lived more than a century ago, and for whom the law and the unit were named.

Ohm's law is known to everyone who makes the application of electricity a study. The discovery and announcement of this law by Ohm brought order and understanding where confusion had before reigned, for it is this simple law which governs all the operations of direct current electricity.

This law observed by Ohm is that the intensity of the current (measured in amperes) is directly proportional to the exciting force (measured in volts) and inversely proportional to the total resistance (measured in ohms). Stated another way: Current equals electromotive force divided by resistance; or, as we most often see it written  $C = \frac{E}{R}$ . Knowing any two of these factors we are able to find the third by solving the equation.

The unit of resistance to the flow of electricity was also named after Ohm and is defined as the resistance offered to an unvarying current of electricity by a column of mercury, at the temperature of melting ice, having a height of 106.3 centimeters, a uniform cross-sectional area and a weight of 14.452 grams.

Ohm was born at Erlangen, Germany, in 1789. His father was a humble locksmith, athirst for knowledge. An able mathematician himself, he taught his son mathematics, and trained the boy in the locksmith's trade.

Young Ohm grew up in the love of his electrical research work, and the treatise in which he first announced his great discovery, entitled "The Galvanic Battery Treated Mathematically," has become a famous classic of science. This was published at Berlin in 1827.

An independent discovery of the law governing electrical current flow was made by Cavendish in 1781, but it was not publicly recognized until the work of Ohm was done. Ohm obtained his results chiefly by experiment.

In 1841, the Royal Society of England honored him with the Gold Medal for the "most conspicuous discovery in the domain of exact investigation."

He died of epilepsy on July 6th, 1854, at the age of 65. His Spirit, devoted on earth to the search for Truth, still lives as a power in the great Cause World.

$$R = \frac{E}{I}$$





### ALEXANDER VOLTA

The word "volt" is probably the most familiar of all words in electrical phraseology. It means, of course, the unit of electrical pressure or potential. The name volt was given to this unit in honor of Alexander Volta who lived more than a century ago and was one of the early experimenters who began to arouse the interest of the world in electricity and its possibilities.

Volta's early experiments had to do principally with contact electricity, but by far his greatest achievement was the discovery of the production of electric current through the agency of chemical action, leading to the discovery of the voltaic pile. Galvani had made his famous frog leg experiments and noticed the peculiar muscular contractions when the legs of a newly killed frog were brought in contact with iron. He assumed that this was caused by a vital fluid flowing out of the nerves of the frog and through the iron. Volta at first believed this to be true, but subsequent experiments convinced him that the true cause was a new form of electric current, produced by chemical action. He then built up an electric generator known after him as the voltaic pile, which consisted of a series of two sets of dissimilar metals arranged alternately one above the other with a liquid capable of conducting electricity between. The pile or battery so made was capable of producing a constant flow of current.

Results of his experiments then led Volta to classify electric conductors into two groups: (1) Conductors like carbon and metals which receive electric charges by contact; (2) conductors composed of liquids (which we now would term electrolytes). Current is then produced by arranging two different conductors of the first class with a conductor of the second class between them. This was the forerunner of the battery, which, before the invention of the dynamo, was the only means of producing current in any considerable quantities.

Alexander Volta was born in Como, Italy, in 1745. In 1774 he was appointed Professor of Physics in the Gymnasium of Como. In 1779 he was given the chair of physics at Pavia and in 1791 received the Copley Medal of the Royal Society. In 1801 Napoleon called him to Paris to show his experiments on contact electricity and a medal was struck in his honor. In 1815 the Emperor of Austria made him Director of Philosophy of Padua. He died in the year 1827.

$$E = I \times R$$



### ANDRE MARIE AMPERE

French Physicist, Mathematician and Naturalist

Ampere invented the astatic needle, of great value to science. He demonstrated that two currents of electricity passing through parallel conductors have an attractive or repellent influence upon one another according as they move in the same or opposite directions. He also made distinguished observations on terrestrial magnetism and earth currents, and established the connection of magnetism and electricity.

Andre Marie Ampere was born in Lyons, France, January 22, 1775, at the beginning of the American Revolution, and was destined to play a conspicuous part in the study of those forces and laws of Nature which were to so materially contribute to the peaceful revolution of the industrial world, and elevate his name and spirit into the company of the immortals.

He displayed his mathematical powers in early boyhood and attracted much public attention by one of his first essays "On the Mathematical Theory of Games of Chance." He gave the name Electrodynamics to that field of science in his "Theory of Electrodynamical Phenomena Deduced from Experiments." He also wrote on the "Undulatory Theory of Light," and an "Essay on the Philosophy of the Sciences, or an Analytical Exposition of a Natural Classification of all Human Knowledge."

He suggested the possibility, after his distinguished discoveries in electro-magnetism, of transmitting electric currents for signaling purposes by electro-magnetic apparatus, between distant points, which was realized in modern telegraphy. Michael Faraday subsequently worked out the fundamental principles of electro-magnetism by his extraordinary labor and results in experimental research.

Ampere was a man of deep emotions. His father was beheaded in France in 1791 during the revolution, producing in the young man a condition of great mental depression. From this after the lapse of a year he was restored to new life and energy by his readings of Rousseau and his love of Nature.

Later in life, again, this state of unhappy despondency fell over him from the death of his wife, whom he dearly loved.

He was distinguished and honored, a teacher and professor of great ability, Chevalier of the Legion of Honor, elected to the Academy of Sciences and heralded throughout the scientific circles of Europe for his discoveries in the field of electromagnetism and electro-dynamics, and his announcement of Ampere's Rule, named in his honor by the leading body of scientists of his day. The ampere, named after him, is the unit of strength of an electric current.

Ampere was described as a man of genial disposition and noted for his simplicity of character. He died in the year 1836, at the age of sixty-one.

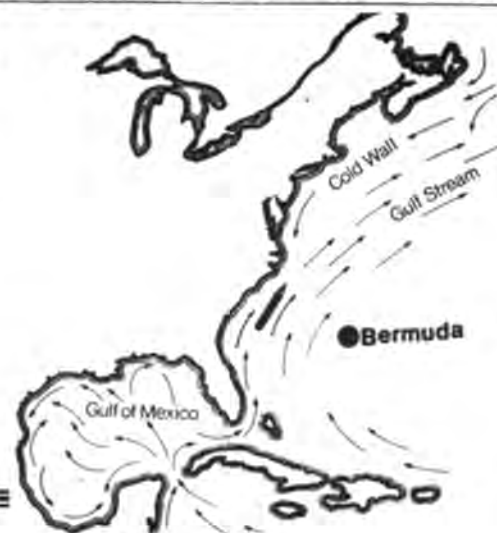
$$I = \frac{E}{R}$$



# BERMUDA

## *Early Communications History*

By Bruce Boyd



Through the courtesy of Mr. Cornell Fox, Commercial Manager for CABLES & WIRELESS, Ltd. in Bermuda; by special permission.

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In a world of continual and rapid change it is vital for an expanding nation to possess a fast and reliable international telecommunication system. This particularly applies to a country such as Bermuda which is heavily involved with businesses such as tourism, banking and overseas trade, which in turn depend on good communications facilities for efficient operation.

International telecommunication first came to Bermuda in 1890; since then the world has changed enormously from that of the Victorian telegraph pioneers. The pace of life has accelerated, international trade has grown amazingly and people now demand a quality and reliability of communication undreamed of 90 years ago. The developments in telecommunication undoubtedly have greatly influenced many commercial and social changes.

However, one thing about Bermuda and its ever-developing communications system remains the same: Cable and Wireless. Ever since 1890 the Cable and Wireless Group, or its founding companies, has continuously operated in Bermuda. The Group currently consists of more than 40 companies operating worldwide; its earliest predecessor, the Anglo-Mediterranean Tel. Co. Ltd., dates back to 1868. Nearly a century of commitment to Bermuda has given Cable and Wireless a strong affinity with the Islands and a tradition of efficient and dedicated public service that is continuing today.

The Company's relationship with Bermuda began on June 8, 1890, when the SS WESTMEATH steamed into Grassy Bay to find a suitable site for landing the shore end of the Halifax-Bermuda cable. It was decided to bring the cable ashore at Tuckers Town, Green Bay. Offices were immediately obtained on Front Street. On July 8, the offices were connected to the submarine cable network. Two days later, His Excellency the Governor, General Newdegate, sent the first ever international telegraph message from Bermuda to Her Majesty Queen Victoria in England. Bermuda had entered the age of electric communications.

The installation of the cable meant a dramatic improvement in the speed of Bermuda's overseas communications. Previously, the only form of international communications had been by post, which could take weeks or even months. From 1890, it was possible to send a message around the world in a few minutes.

The new cable was a great leap forward for the people of Bermuda, but they could not possibly realize then the enormous advances in telecommunications that would occur in the next century. For instance, when the first cable was laid into Bermuda, all messages had to be transmitted by hand over small-channel-capacity cables; it would have taken two years nonstop to send ten million words. Now, using the latest high-capacity telephone cables linked to high-speed data systems, Cable & Wireless can do it in one minute.

Bermuda's second international cable connection soon followed in 1898 when the Islands were linked with Turks Island (BWI). The cable continued south from there to Jamaica, completing the link with the West Indies network. This gave Bermuda greater channel capacity and also a valuable diversity of routing.

For the next twenty years telecommunications developments were concentrated on increasing the speed of transmission and reception. In 1923 the punched-tape system was introduced and messages could be sent automatically, which meant a considerable saving in time and effort. During the same period there had also been rapid developments in the application of

radio for international telegraphy. The growth of international radio communications posed a serious threat to the welfare of the old established cable companies who had, literally, sunk millions of pounds into submarine cable systems. Radio required less power, time, upkeep and was also cheaper; but the cables had to be maintained for security and strategic reasons.

Back in 1898, William Preece had recommended to the Post Office that they buy Marconi's patent rights for radio communications for 10,000 pounds, but the proposal was shelved as the Post Office was still skeptical that radio could or would work! Just four years later Preece said that he was "very clearly of the opinion that submarine cable enterprise has nothing to fear in a commercial sense from the competition of etheric telegraph." This was a view that was shared by Sir Oliver Lodge, who said in 1902 "It is manifest that wireless or open methods cannot compete in point of secrecy or certainty with closed or cable methods, and can only compete with them in point of speed and accuracy by aid of great improvements and new inventions involving little less than discoveries."

However, in 1907, Marconi started a limited commercial wireless service across the North Atlantic. By 1928 it had become apparent that two similar interests were in fierce competition with each other, whereas they should have been complementary. To try to rationalize the situation and prevent wasteful competition the Imperial Wireless and Cable Conference was held in 1928. The following year, after lengthy discussions, it was decided to merge the overseas operations of some 30 British companies into a single company known as Imperial & International Communications, Ltd. Five years later the name was changed to Cable & Wireless, Ltd.

While negotiations were taking place in London the Bermuda wireless coast station was opened to provide essential communication and direction finding (DF) services for any aircraft or shipping in the vicinity. The station's two towering 300-foot aerials were a landmark to mariners for many years. They were eventually taken down in 1963.

(Continued on Page 21)



THE BERMUDA STATION

This pictures the early day equipment installed at the Green Bay office in Tuckers Town at the time the station was commissioned on July 8 1890. His Excellency, the Governor, General Newdegate, sent the first ever international telegraph message from Bermuda to Her Majesty Queen Victoria in England.





#### BERMUDA'S FIRST TELECOMMUNICATION LINK TO OUTSIDE WORLD -- 1890

Picture of the Cable Building which provided offices for the Halifax & Bermudas Cable Co., Ltd., and the Direct West India Cable Company, Ltd.. The exterior picture is of the original telegraph office established. While the office has long since been moved to modernized quarters on Church Street in Bermuda, the original building still exists on Front Street in Hamilton, with the iron pillared facade virtually unchanged. The building is now occupied by a restaurant. Picture courtesy Cable and Wireless, Ltd.

(Continued from Page 20)

On one memorable occasion the station's DF service came to the aid of the famous German airship GRAF ZEPPELIN which was on a scheduled flight from Germany to New York. Due to bad weather conditions and poor visibility the craft had drifted off course and was flying out of sight of land. The Bermuda coast station quickly picked up a message from the airship and very soon the station's DF signals had it back on its proper course.

Bermuda really broke through to the forefront of international telecommunications in 1931 when a radio telephone circuit was opened to New York. The circuit was the first of its kind to be operated by the Company; it was the second ever worldwide - the first being that from London to New York.

In 1937 Bermuda and New York were further linked by a special "flying boat" service which supplied long-distance short-wave DF bearings for aircraft and shipping on both the Bermuda-to-New York and the transatlantic routes.

Once again a Cable & Wireless DF service proved to be of vital importance and, in fact, life-saving. In January 1939 the Imperial Airways flying boat CAVALIER encountered terrible icing on the journey between New York and Bermuda; all four of her engines failed. Just before ditching in the sea, CAVALIER managed to send an emergency distress call which was picked up by the Cable & Wireless "flying boat" service. The station immediately plotted the plane's position and radioed to an American tanker in the aircraft's vicinity. Thanks to the bearings from the station, the tanker was able to rescue many otherwise doomed survivors just a few hours later.

Submarine cables were the first medium of international telecommunications. Despite the challenges of radio and satellite communications the cable system is still flourishing and expanding.

Cable & Wireless owns the world's largest commercial fleet of cables, including CS CABLE VENTURE which has the largest cable-holding capacity of any cable ship afloat. The Company owns and has interests in 32,000 nautical miles of submarine cable; during the past ten years it has laid about one-third of the world's submarine cables. It is now responsible for maintaining over half of the world's cable mileage. Bermuda has been further linked to this vast submarine cable network in recent years. An 80-channel

cable was laid between Bermuda and Tortola in 1966; this was followed three years later by a 480-channel cable linking Bermuda with Canada.

The increasing volume and urgency of modern business has led to an increasing demand for fast and reliable international telecommunications. In the past twenty years Telex has become an essential medium for efficient business communications, especially where complex information has to be relayed quickly and free from all errors. The international Telex service was opened in Bermuda in 1962; in 1974 Cable & Wireless installed a new computerized automatic telex exchange (ATX). The installation of the ATX meant that subscribers could dial international calls direct from their telex machines without requiring operator assistance. It made telex communication cheaper, more reliable and, most importantly, much faster.

In the financial year 1974-75, when ATX was cut-over, the international forwarded telex traffic from Bermuda totalled just over 450,000 minutes. By 1979-80 the traffic figure had risen to nearly 1,250,000 minutes, an increase of almost 300% in five years. Worldwide,

#### ABOUT BERMUDA

This is a British colony comprising a group of about 360 islands (of which only 20 are inhabited) about 640 miles ESE of Cape Hatteras in the Western North Atlantic Ocean ab. 32°14' N. Lat. and 64°38' to 64° 52' W. longitude; 19 sq. miles with population in 1940 of 30,814. The principal island is named Bermuda or Great Bermuda Island. (Some call it "Long" Island). Hamilton on Bermuda Island is the capital.

The islands were first visited by the Spanish in 1515 and named for Juan de Bermudez' English called them Somers Islands after Sir George Somers who was forced to land there while on his way to Virginia in 1609; first colonized by English (sent by members of Virginia Company) on St. George's Island in 1612; settled and governed under the Somers Island Co. 1615-1684; taken over by the Crown 1684; capital removed from St. George to Hamilton in 1815; sites for military and naval bases leased to the United States in 1940. The islands were linked with the outside world in 1890 when a drop on the Halifax-Bermuda cable was commissioned at Tuckers Town, Green Bay office. Thanks to SOWP member Bruce Boyd for this article and to Cable and Wireless Ltd., Hamilton, Bermuda for furnishing historical background information and pictures used.



# -BERMUDA-

(Continued from Page 21)

telex is the fastest-growing form of international telecommunications; in the latest financial year the telex traffic handled by the Cable & Wireless Group rose by 42% to nearly 70,000,000 minutes.

Just as important to business, but more important to personal and social communications, is international telephony. Like telex, telephony has shown a remarkable increase in the past five years. In 1974-75 the outgoing telephone traffic from Bermuda amounted to 2,694,740 minutes; last year the total had risen by over 300% to 8,305,182 minutes. The telephone minutes handled by the Group in 1979-80 rose by 41% to 135,280,000.

The rapid expansion of the international telecommunications traffic is a good reflection of Bermuda's growing economic prosperity and its confidence in the modern business world.

In the 1960s Bermuda played an essential part as a communications center in Man's most ambitious venture ever: the NASA project to put a man on the moon. Due to its location, the Bermuda station was the only one in the NASA complex which could keep in touch with the astronauts in the massive Saturn-V rockets in the critical moments after lift-off. Happily, it is now part of history that Bermuda played her part in the Moon landings with great efficiency.

The relationship among Cable & Wireless, NASA and Bermuda was strengthened even further in 1978 when a small earth-station dish was installed. The station is unique in that it is the only one ever built entirely by Cable & Wireless engineers. Although the station is reserved for the use of NASA, its inauguration was a very public occasion. To celebrate the opening, Cable & Wireless collaborated with ZFB-TV to give Bermuda its first-ever live television satellite broadcasts: the semifinals and final of the Football World Cup in Argentina.

Cable & Wireless has recently expanded Bermuda's range of telecommunications facilities by introducing two new highly modern services: Bureaufax and IDAS (International Database Access Service). Bureaufax is a facsimile service operated by Cable & Wireless on a bureau basis. The service allows customers to send facsimiles - literally identical copies - to any destination in Hong Kong, USA, Bahrain or Canada. It is planned greatly to expand the service to many destinations in Europe, South America and the Far East. Bureaufax has several advantages for businessmen, particularly where there is a need for someone overseas to see a copy of an agreement on a design faster than the post could carry it. The bureau also eliminates the need for customers to buy their own expensive facsimile equipment, and so there is no worry about equipment compatibility between correspondents.

The very latest addition to the range of Cable & Wireless services in Bermuda is IDAS. This service allows subscribers access to North American databases, which contain vast amounts of technical and business information, and remote computer-processing resources. As the system is based on the use of computer terminals, it allows subscribers to dispense with costly and complicated filing systems. The system also has a high degree of security. After registration, each subscriber is issued a password by the computer-facility vendor, and a user name from Cable & Wireless. Both of these must be used to gain access to the system, therefore use of IDAS can easily be restricted to authorized personnel within the subscriber's organization. The computer-based IDAS system is one of the many great leaps forward made by telecommunications in Bermuda since the laying of the cable to Halifax in 1890.

The relationship between Cable & Wireless and Bermuda has existed and flourished on a cordial and mutually beneficial basis for ninety years now. We are proud to be celebrating our 90th anniversary in Bermuda and hope that the special relationship between the Islands and the Company will continue to flourish for many years to come.



Mr. Fox of the Hamilton office furnished some historical notes on Station VRT which was established in 1928. Parenthetically, Author Boyd also reports that SOWP member Art Goodnow says he remembers an earlier spark station on Bermuda which had the call BZB or BZF. Old timer Ray Morehouse recalls the spark station but remembers the call as BZR. The only record we have is the listing of listings in Bermuda is Station "BZB" - 1915 which is located Hamilton Dockyard BWI. [ List of World Stations 1915 by Frank A. Hart and H.M. Story (Marconi International Marine) ].



S. S. Queen of Bermuda

This beautiful ship is one of two luxury liners, especially designed for the popular service between New York and the Bermuda Islands, built in England in 1933 for the Furness-Bermuda Line. *Queen of Bermuda* is 353'-3" long; has a beam of 76'-7"; and gross tonnage of 22,575. The passenger accommodations are not only spacious and luxurious, but this vessel is distinguished by the fact that it was one of the first of the large ships to provide a private bath with every room. Sailing weekly from New York, *Queen of Bermuda* carries 730 passengers, and a crew of 450.

MEMO

+ FOOTNOTE +

Mr. T.G.H. Townsend, Manager Administration of Cable & Wireless Ltd., states that re: the G94 unit he thinks the power of the G94 unit should have been 2.1 KW instead of 210 KW. Author of this article, Bruce Boyd concurs and adds the footnote that he visited Station VRT in 1971 and on a more recent visit 1980.





## Milestones in Bermuda's Overseas Telecommunications

- 1890 June 11: Shore end of Bermuda-Halifax cable laid by SS WESTMEATH from No.6 Front Street through Hamilton Harbour to Cross Head float at the Reach.
- 1890 July 7: SS WESTMEATH lands cable from Halifax at Cable Beach in Tuckers Town.
- 1890 July: Hamilton office is connected to Halifax by cable.
- 1890 July 10: Message sent to H.M.The Queen from H.E. The Governor of Bermuda.
- 1890 July 14: Cable service opened to the public by the Halifax and Bermudas Cable Company, Ltd. from No.6 Front Street.
- 1891 Jan.21: Branch office opened at Town Hall St. Georges. This office remained in use until May 1928 when the wireless station at Lily Park was opened.
- 1898 Jan.17: Bermuda-Turks Island cable opened for public traffic by the Direct West India Cable Co. Ltd., with offices at No.6 Front Street.
- 1898 Feb.8: Cable opened between Turks Island and Jamaica, thus connecting Halifax direct to Jamaica via Bermuda.
- 1916 July: Bay cables diverted to Ducking Stool and thence overland to No.6 Front Street. Cable through Hamilton Harbour abandoned.
- 1925 March: Automatic telegraph reception and transmission introduced in Hamilton Cable Office, but transmit messages still handled by operators.
- 1928 May: Wireless station opened at Lily Park, St. Georges. Coast Station VRT opened for traffic to ships. Direction finding facilities available.
- 1929 April: Some 30 British telecommunications companies throughout the world merged into one company registered in London and named Imperial & International Communications, Ltd. In Bermuda the operations carried on under previous names of Halifax & Bermudas Cable Co. Ltd., and the Direct West India Cable Co. Ltd.
- 1931 November: New wireless receiving station opened at "Eagles Nest" on borders of Devonshire and Smith Parishes. New and better DF facilities installed. Transmitting station remains at Lily Park, St. Georges.
- 1931 Dec.21: Bermuda-New York radiotelephone service opened in conjunction with the American Telephone & Telegraph Co. and operated by the Bermuda Telephone Co. Ltd.
- 1932 November: Cable re-generator equipment installed and branch now fully automatically operated.
- 1936 Oct.1: Name of local operating company changed to West India & Panama Telegraph Co. Ltd.
- 1936 Nov.1: Cable office on Front Street moved from No.6 Front Street to site at present occupied.
- 1937 June: Internal teleprinter services instituted between local airline offices and the Air/Ground Station.
- 1937 June 16: Flying Boat service opened between Bermuda and New York.
- 1937 August: Air/Ground and point-to-point telegraph services opened for aircraft working between Port Washington, Wis., New York and Bermuda.
- 1937 August 29: New high-frequency DF station built on Town Hill opened for supplying long-range bearings to aircraft and ships.
- 1938 April 1: Name of operating company changed to Cable & Wireless (W.I.), Ltd.
- 1947 Nov, 18: Facsimile service instituted for the transmission and reception of pictures by radio.
- 1948 May 11: Operation of Air/Ground services now carried on by radiotelephony instead of my Morse telegraph.
- 1949 May 15: High-frequency DF station on Town Hill closes down. All telegraph air-ground services closed.
- 1952 August: Office for the acceptance of telegrams within the Customs Area of the Civil Air Terminal, opened by Bermuda Visitors Service Bureau, in conjunction with the Bermuda Chamber of Commerce.
- 1953 Sept.15: All Air/Ground services previously operated by Cable & Wireless (W.I.) Ltd. taken over by Kindley Air Force Base.
- 1953 Nov. 1: New teleprinter communications distribution center opened in Civil Airport for overseas aeronautical traffic operated by Department of Civil Aviation.
- 1957 July 2: Special radio leased circuit opened with Aeronautical Radio, Inc. for the communications distribution center at the airport feeding traffic to local airline offices.
- 1962 Jan.8: Bermuda-USA coaxial cable service opened.
- 1962 Sept.10: International TELEX service opened to many parts of the world.
- 1963 July 1: Marine DF service closes down.
- 1964 July 1: Civil distribution center at the airport goes over to a fully automatic switching network system brought into use for airline offices between Bermuda and New York and operated by Department of Civil Aviation
- 1965 Jan.28: Announcement by Cable & Wireless (W.I.) Ltd. that a new coaxial cable will be laid between Bermuda and Tortola in the British Virgin Islands when permission is granted by the governments concerned.
- 1965 March 17: Extended range VHF service for aircraft brought into operation for the Department of Civil Aviation.
- 1966 June: Five 30 kW transmitters and associated HF receivers and aerial systems brought into operation for Apollo Space Communication Systems between the NASA ship and the Bermuda-USA cable connection to the Goddard Space Flight Center.
- 1966 September: Bermuda-Tortola coaxial cable service opened.
- 1967 May: New cable office opened on Church Street opposite City Hall.
- 1970: Devonshire Complex expanded as a new coaxial cable being laid between Bermuda and Canada.
- 1971 April: Cable Ship SENTINEL arrives as first cable-ship assigned to the new Bda C/S station.
- 1971 May: Bermuda-Canada coaxial cable service opened.
- 1973 November: Bermuda Radio/VRT coast station opens marine TELEX services for ships at sea.
- 1973: Cable Depot opened at Dockyard.
- 1974 November: Automatic TELEX exchange brought into operation in the Hamilton cable office.
- 1975 July: International Subscriber Dialing (ISD) service to USA-Canada.
- 1976 May: Public Switched Data Service opened.
- 1976 July 1: International Subscriber Dialing (ISD) service to Hawaii-United Kingdom.
- 1976 Nov.1: International Subscriber Dialing (ISD) service to Alaska.
- 1976 Dec.1: International Subscriber Dialing (ISD) service to the Bahamas.

(Continued on Page 24)



## BERMUDA ALMANAC

(Continued from Page 23)

- 1976 Dec.4: Automatic TELEX Exchange (ATX) expansion one completed and cutover to live traffic, increasing capacity from 432 terminations to 576. Processors changed from DEC PDP 11/05 to DEC PDP 11/35, increasing memory core from 28K to 64K.
- 1977 Oct.1: International Subscriber Dialing (ISD) service to Australia.
- 1978 June 1: International Subscriber Dialing (ISD) service to Denmark, Hong Kong and New Zealand.
- 1978 June: VHF (Hague Plan) Radiotelephone service inaugurated at Bermuda Radio/VRT.
- 1978 June 24: First live television broadcast in Bermuda. (World Cup Semifinal in Argentina-Brazil vs. Italy).
- 1978 Aug.1: International Subscriber Dialing (ISD) service to Brazil, Greece, Luxembourg, Sweden and South Africa.
- 1978 September: Devonshire Satellite Earth Station brought into service in support of the NASA Space Shuttle program.
- 1978 Oct.1: International Subscriber (ISD) service to Norway.
- 1978 November: Automatic TELEX Exchange expanded to 720 terminations.
- 1979 January 1: International Subscriber Dialing (ISD) service to Japan, Puerto Rico, Singapore and U.S. Virgin Islands.
- 1979 Feb.1: International Subscriber Dialing (ISD) service to Italy and Netherlands.
- 1979 Aug.1: International Subscriber Dialing (ISD) service to Austria, Belgium, France, W.Germany and Switzerland.
- 1979 Dec.17: Bureau Fax Service inaugurated from Bermuda to U.S.A. and Canada.
- 1980 Jan.1: One-minute minimum charging introduced on International Subscriber dialed calls.
- 1980 May 17: Automatic TELEX Exchange expanded to 1200 terminations. Processors were upgraded to 96K of memory core and magnetic tapes were changed from 7-track to 9-track.
- 1980 July 1: International Database Access Service inaugurated with the Bank of Butterfield as first customer.

## STATIONS VRT & ZBM

The Bermuda coast radio station/VRT was inaugurated in May 1928. Very little information has been compiled on the history of this station but it is well known that during the early years Bermuda Radio played an important role in DF bearings for ships approaching Bermuda. Today that role is carried out by Bermuda Harbour Radio/ZBM; Bermuda Radio deals primarily with commercial traffic via radiotelegraphy, radiotelephone and radiotelex services.

### TECHNICAL INFORMATION

#### Wireless Telegraphy via Hectometric waves (MF)

This service is operated on 500/426 kHz using two transmitters: Redifon Models G94 and G40. Each transmitter consists of two RF units, one tuned to 426 kHz and the other to 500 kHz.

Two T-type aerials each with its matching transformer 'ACU 3B' are remotely switched to whichever RF unit is selected. Remote control of this equipment is accomplished with tone control on the G94 and DC control on the G40 and aerial changeover unit. The rated power output:

G40 - 750 W  
G94 - 210 kW\*

#### Via Decametric Waves (HF)

This service is operated on the 4/6/8/12/16 MHz bands utilizing a SPT A103-PO-HF-6 transmitter. The aerial used with this service is a Jaybeam 1510-430 MHz wideband folded dipole array with Minns SDV01A matching transformer.

#### Radiotelephone via Hectometric waves (MF)

This service is operated on 2182/2550 kHz utilizing a SPT A103-PO-HF-6 transmitter. A dedicated aerial of C and S type 2-5 MHz conical monopole BCMIL with Marconi HA113 matching transformer is used on this service. Rated power output: 1.0 kW.

#### Via Decametric waves (HF)

This service is operated on the 4/8/12/16 MHz bands using an SPT transmitter as above. The aerial used with the transmitter is a Jaybeam 1510-230 2-30 MHz wideband folded dipole array with a Minns SDV01A matching transformer.

#### Radiotelex

Operated on 6/8/12/16 MHz, this service utilizes a Marconi manually tuned transmitter Model HS31 with a power output of 3.5 kW. As a local modification the transmitter has a Minns VDVO1D matching transformer to match the 600-ohm transmitter to the 50-ohm feeder system. The aerial used with this service is a Jaybeam 1510-430 as for wireless telegraphy. □

\*The 210 figure may be an error. It would be a BIG set.-B.B.



## Sweet Memories

1. I remember; I remember the radio shack so small  
the little cot that folded so snug against the wall  
where my feet stuck through the window for everyone to see  
t'was there I got 'em sunburned on the S.S. X.V.B.
2. You'd have to go to the county coop, for a smaller  
room to find.  
In fact its very doubtful if there's room to change  
your mind.  
I almost turned a somersault when we got in a sea  
on gentle Lake Superior on the S.S. X.V.B.
3. In fancy yet I see the place (t'was built around the mast)  
'tis said they put the set in first and built the cabin last.  
The way she leaked when rain drops dropped, was a  
pleasant sight to see,  
not to mention how nice and damp we got in station X.V.B.
4. I may go to many harbours and moor at many docks  
but never hope to sail again in such a little box.  
I'll always remember when I was "OP" on the good ship X.V.B.

### "Sparks"

W. (Bill) White, Opr.

NOTE: XVB was the S.S. Glenorchy, later sunk in a collision on Lake Huron.

Above poem?? was given to me by Jack Gervais, VE3JAG an ex Great Lakes operator and retired Department of Communications Inspector, Kitchener, Ontario. 20th October 1982

MARSHALL S. KILLEN 2226-SGP VE3KK



"THAT FRAGRANCE, SIR ?  
OH, I JUST GOT THROUGH  
SPRAYING THE RADIO ROOM  
WITH 'STATIC GUARD'."



# High and low times on the high seas

## Childhood Hobby Becomes Lifetime Career

### 70 years with 'wireless'

By TOM FORSTROM  
Of the Statesman-Journal

Seventy-three years ago, when Ralph Hazelton was not even a teenager, his interest was sparked by a hobby that became a profession.

"It was called wireless in those days," Hazelton said of the first crude telegraph rig he and a friend built in 1910. They built that contraption from scrounged parts and another that was powered by a spark coil from a Model T Ford.

Evidence of his long interest in ham radio hangs on the walls of the radio room of his East Salem home. Among the licenses and certificates and photos he has accumulated is a special one he recently received.

IT IS A 70-year citation from the Quarter Century Wireless Association. It is a worldwide group with about 20,000 members, Hazelton said, and he is only the ninth person to receive the 70-year honor.

And during those years Hazelton has been all over the world, literally and through the radio airwaves.

It began in Santa Cruz, Calif., where some of the neighborhood kids were building wireless sets. "My buddy and I got interested in it. We'd watch 'em, hang around, see what they could come up with."

He and his friend built sets. "We got to telegraph to each other. We got a lot of fun out of it and learned things, too. I learned the code fiddling around like that."

THE CODE IS Morse Code, the language that wireless and ham radio operators use to communicate through the telegraph key.

Hazelton's friend, Charlie Dodge, joined the Navy and became a radioman on a warship. "He asked me to join up," Hazelton said.

But you had to be 18 to join, and Hazelton was only 17 at the time. "I had dear old mom forge that I was 18, and she did."

Hazelton spent time as a radioman on the USS Marblehead, then the battleship Oregon and later again on the Marblehead.

When he was discharged from the Navy, his professional career began. He obtained his professional radio license and went looking for a job. He got one on the steamship Willamette, which hauled lumber from Washington and Oregon to California.

"I GOT TO LOOK at the Northwest," he said. "I often wondered how it looked up here."

"Meantime, I got fed up with the ship," and he went job hunting again.

The next 11 years he was "Sparks" on a merchant ship called West Kader, which hauled cargo all over the world — the Orient, Europe, Cuba and other places.

By 1931 the Depression had taken a strong hold, and ships were affected, too. "Wages were cut, and they were laying up ships," Hazelton said. "I discovered the federal airways needed radiomen."

In the meantime, he had been writing to his girlfriend, Danae Burkholder. He asked her if he got a job with the airways, "Would you go with me?"

HAZELTON GOT a job, and on Dec. 10, 1932, he and Danae were married. "She's been my sweetheart for 50 years," he said.

Hazelton spent 33 years with the Federal Aviation Administration, which has gone by several names during his time with the agency. Al-

together, he has spent "50 years or so" as a radioman with the Navy, the merchant ships and the FAA.

He even came out of retirement to go to sea again after being away from ships for 35 years.

After several years of retirement he brushed up on the new rules, then "took the exam and got renewed."

He got a call. The merchant ship *Hermina* needed a radioman. The problem was, he had one day to get from the Northwest to Charleston, S.C., and take a physical exam.

HE GOT HIS airline tickets, his exam and flew all night from the West Coast to Atlanta, then in a "puddle jumper" to Charleston. "I beat the ship in," he said.

Hazelton made several trips after that, the last one in 1969 on the grain ship *Abaqua* to Bombay, India.

"So that wound up my professional career for the second time," he said. He was 70 at the time.

It may have ended his career, but not his interest in ham radio. He continues to "work" different countries of the world and collects "QSL" cards. They are cards of acknowledgement that his message was picked up by the intended receiver.

Hazelton has communicated with radio operators in Russia, France, Japan, Germany and many other countries. He also has a "WAS" certificate, meaning he has "worked all states."

IN ADDITION, Hazelton keeps up with two groups of retired people who also are hams. In one group, they "meet" every day at the same time and same frequency on the radio. Another, the Casual Net, gets together for meetings and dinners.

Hazelton shares his experiences. He is a volunteer teacher at Englewood School in Salem.

"I've been doing that a year, I guess," he said. He helps teach grades 3, 4 and 5 in reading and spelling. "And geography," he added, "if it's countries I've been into."

Hazelton is particularly pleased with his 70-year award. "I don't know if they give an 80-year or not," he said. "If I'm around in 10 years, maybe I'll find out."

Life on the high seas, even as a radio operator, is not without its moments of danger.

Longtime radio operator Ralph Hazelton recalled some of them.

Once, while he was working on a merchant ship anchored off the coast of Cuba, vendors in bumboats came up and sold things on the ship. Among the goods sold was rum.

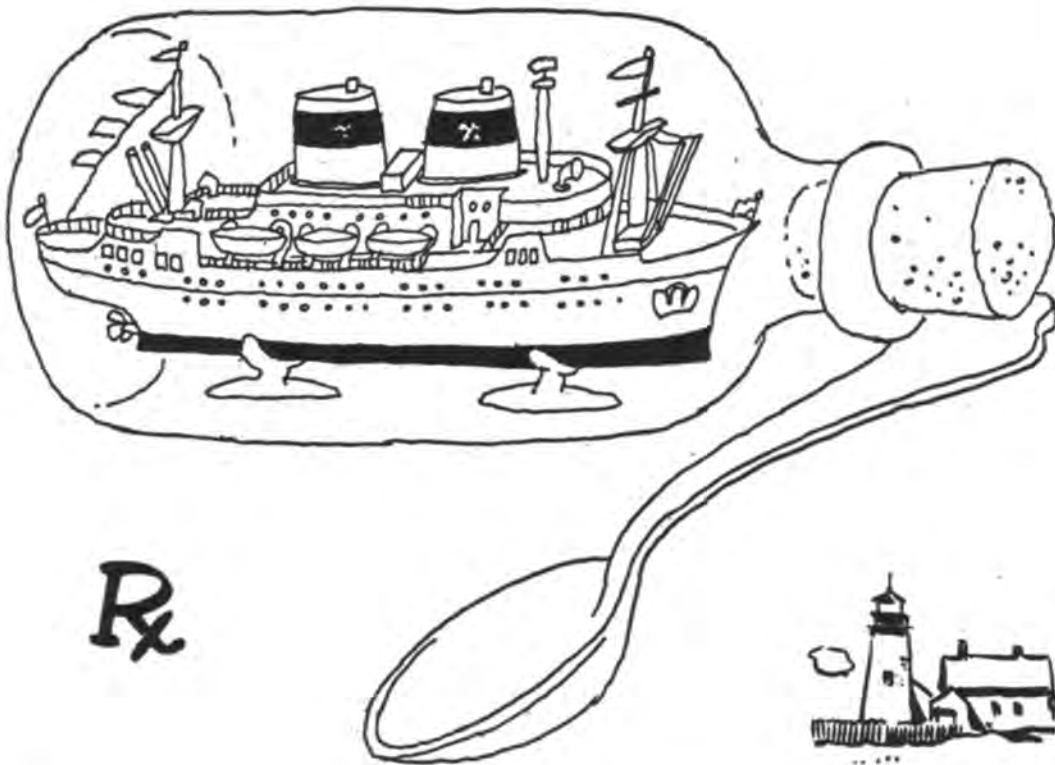
Some of the crew "went on a binge," he said. "They became a drunken mob." A couple became violent, and one staggered to the captain and asked permission to kill the cook. He was hauled off and slapped in irons, but others in the crew freed him.

HAZELTON WAS asked to radio the Cuban police for help. A launch came out and took the unruly sailors away.

In 1920 Ireland was fighting for independence from Britain. Martial law was imposed, and anyone out after curfew was likely to be captured by the British or even shot.

A crewman from Hazelton's ship

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Feb. 27 1983



PHOTOGRAPH BY DEAN KOEPLER

Ralph Hazelton of Salem, a 70-year ham radio operator.

was late returning. He was shot, but managed to get to the ship.

Hazelton was asked to radio for help, but no one would come because it was dark, and martial law was in force. Instead, the advice was to give the crewman whiskey to ease the pain. At dawn the next day, the injured man was taken to the hospital and treated. He survived.

ON ONE TRIP, the ship Hazelton was working on developed a leak in Japan. The ship's home port was Charleston, S.C., and the captain, described by Hazelton as a cantankerous sort, wanted to sail across the Pacific to San Francisco despite the leak.

"They couldn't stop him," he said. "We crossed with a big hole in the bottom." The ship didn't go to San Francisco, but instead through the Panama Canal and all the way back to Charleston.

During his days with the Navy, Hazelton and some others on board the USS *Marblehead* ran into trouble in Mexico.

In the belief that Germany had set up powerful radio transmitters in Mexico, U.S. ships were patrolling the waters.

ON ONE TRIP, the captain decided it was time for R&R for the crew, and he sent them all ashore, off the coast about 15 miles from the town of Guymas. The Mexican government remained neutral in World War I, and anyone involved in the conflict could dock only 24 hours. That included the United States.

Some of the crew stayed on the beaches, some went hiking, and others, including Hazelton, decided to go deer hunting in the desert.

They ran out of water, and when they saw a patch of green trees, they headed for it. Mexican soldiers were at the ranch where the trees were. The crewmen were arrested.

Hazelton said after a 14-mile march to Guymas, the *Marblehead* crewmen captured by the Mexican Army were held in the Army barracks. Negotiations did no good, and they were held for a week.

THE CAPTAIN of the *Marblehead*

took negotiations into his own hands, Hazelton said. He sailed into the port at Guymas. "He dropped anchor and said he would blow the place up if we were not turned loose."

They were turned loose. But the one Hazelton didn't think he was going to make it through was one of his last assignments. The ship, *Young America*, was in Japan and due to sail to San Francisco.

Hazelton became very ill with the flu, so ill he asked the captain to take him to the hospital. The captain, however, could not sail without a radioman and persuaded Hazelton to stick it out on board ship.

He was given a shot of penicillin and went to bed. But he didn't get better, and he thought he was going to be crossing over more than just the Pacific.

THREE DAYS out the captain came to him and asked if he was able to send a message. Hazelton said he would try.

The message was that the *Young America* was returning to Japan with a very sick radioman.



# Flashback to 1924 - Still Pioneering

A Page from History—Reprint from May 1924 Issue—"The Wireless Age"

MAY, 1924

THE WIRELESS AGE

## AFLOAT AND ASHORE WITH THE OPERATOR



By W. S. Fitzpatrick

SAN FRANCISCO boasts an old-timers' club called "Radio Pioneers," comprising men who were in the radio profession prior to ten years ago.

The Atlantic Coast is not quite as fortunate in having such an exclusive organization, but if there were one it would produce some mighty keen rivalry. As a matter of fact the Atlantic Coast could have a fairly large organization of pioneers who are *right now* sea-going operators and who entered the field as such over fifteen years ago.

Many of these men are well known while others have kept in the background; nevertheless all have records to be proud of.

E. N. Pickerill, chief operator of the *Leviathan*, the pride of America's merchant marine, was a professional radio operator nineteen years ago. He has seen varied service both at sea and in shore duty and now has seven assistant operators under him on the big ship. During the war he was a lieutenant aviator in the United States Army. Pickerill is a real American—a member of the Sons of the American Revolution.

Benjamin Beckerman was assigned to a ship of the Old Dominion Line in 1908. He is still running on that line as senior operator of the *Jefferson*, and this long service was broken only by his naval enlistment during the war and by not more than a trip or two on other steamship lines.

Frank E. Black, chief operator on the big trans-Atlantic liner *America*, started before the head telephones came into use as receiving equipment. In his day the incoming messages were recorded on tape which, incidently, also recorded all the static and light-

ning flashes. Old telegraph operators in Black's class began to read the click of the relay, which enabled them to pick much more of the message out of the static and have it on paper some little time before those who had to translate from the tape. This eventual-



R. W. Toms E. N. Pickerill O. L. Goertz B. Beckerman

ly brought about receiving by sound rather than sight, and had it not done so there would be no present day broadcasting. At the time Black started no signals had been heard at as great a distance as a hundred miles! Is Frank Black an old timer? Rather!

Arthur Cohen, an assistant on the *America*, started his radio career in February, 1905, and has been actively engaged in it practically ever since, even during the war when he was a naval radio instructor at Cambridge.

Milton O. Green dates his radio service back about fifteen years. He was manager of the New Orleans coast station thirteen years ago, has since been chief on large trans-Atlantic passenger liners and is now on the Isthmian Line freighter *Steel Seafarer*.

Herbert M. Rodebaugh is said to be the oldest man both in years and in point of service along the Atlantic Coast. He had the distinction in 1917 of being in charge of the first ship to carry a girl junior operator, which, incidently, is the same ship on which he

is now running—the *Howard* of the Merchants and Miners Line.

Robert W. Toms, now on the *Steel Trader*, has been continuously engaged as a ship operator more than sixteen years, this record being broken only by his war service in France, during which time he engaged in the famous battle of the Mons. He holds a medal issued by the British government as one of the number who actually saw the "Angel of Mons," which appeared one night during that bloody battle.

Oscar L. Goertz became a wireless operator on ships during 1906. From 1914 to 1919, he was in the United States Army Signal Corps on foreign service in the Philippine Islands. He holds a Signal Corps experts' certificate showing proficiency in radio and telegraph circuits, as well as operating and maintenance. Following his discharge he again took up ship operating and for the past two years was chief on the *President Van Buren* running between New York and London. He is now temporarily assigned as senior on the *Jamestown*.

James F. Forsyth—they all call him "Doc"—now running between New York and Mediterranean ports on the *Carenco*, is said to have not had a trip off as a vacation in the past thirteen years and five months. Doc is one of radio's old stand-bys and one of the best.

Henry F. Bollendonk, one of the *Leviathan's* crew, is primarily a telegraph operator with experience on railroad, Western Union, stock, press and cable circuits. He became a wireless man on ships in 1910.

Robert Lee Etheridge, is, as his name suggests, of old Virginia stock. He entered radio in February, 1910,

### Afloat and Ashore With the Operators

and will be remembered as one of the heroes of the *Monroc* disaster in 1913, in which his partner, Frederick J. Kuehn, lost his life after giving his life belt to a woman passenger. Etheridge is now on the Standard Oil tank steamer *Baton Rouge*.

Harold Hatton, now on the steamer *I. C. White*, was a well known ship operator running out of New York twelve years ago.

Eugene O. Lemieux, now on the Canadian steamer *Ormes*, but running between New York and the West Indies, received his first assignment on an American ship in September, 1907.

Emanuel J. Marschall was assigned to a passenger ship twelve years ago. He is now senior on the Red D Liner *Maracaibo*.

Frederick W. Harper, operator on the *Hahira*, has been a radio man since April, 1912.

M. B. G. Rabbitts has traveled to all points of the globe during his thirteen years' continuous radio service and is now on the tanker *Standard*.

E. W. Rogers started as a radio operator in June, 1909, and has had many experiences during the past fifteen years, the most peculiar of which was when he read his own death notice in the newspapers following his return from a voyage to South Africa on a sailing vessel during the war. He left New York at the time the German submarines were along the American coast and in a storm the first day out his wireless equipment was demolished, and a life boat was lost. The finding of the life boat and the fact of no word being received from the vessel seemed to furnish proof that she had been torpedoed and sunk with all hands. Rogers is a big man physically, has a big deep voice, a big heart and a big knowledge of radio operating. He is well thought of by his co-workers. He is now on the *Winona*.

Charles L. Fagan, who has been senior operator on the Grace Liner *Santa Elisa* for the past two years with no thought of a change, is rounding out his twelfth year as an exclusive passenger ship operator, this record being broken only by about six months spent as a railroad operator in 1918, but on leave of absence from his employers.

Charles E. Stevens on the *Santa Cecilia* has seen more than a decade of years go by while serving as a ship wireless operator; George Kavanagh, senior on the *City of Birmingham*, about as many, and C. S. Thevenet, senior on the *City of Chattanooga*, about twelve, the most of which has been on the Savannah Line, with the exception of his service as a naval radio operator during the war.

Carl L. Jones is another old-timer and has run on ships under six different flags in the past nine years. He is now on the tanker *Joseph Seep*.

These men represent the pioneers of the Atlantic coast who are still radio operators aboard ships in active duty. It is to be regretted that the presentation could not be completed by photographs of all. If there is a pioneer whose name should have been mentioned and is not, we would be glad to hear of him.



J. F. Forsyth C. E. Stevens H. Hatton E. J. Marschall R. W. Young F. W. Harper M. B. G. Rabbitts E. W. Rogers

## When A Good Idea Sounds Fishy

Sometimes, even when everyone involved has the best of intentions, a good idea can get out of control. Take, for example, the saga of the fish with the ugly names. It all started out very innocently when someone in the National Maritime Fisheries Service realized that there were numerous species of delectable fish that would never make it to the banquet table — all because of the unappealing sounds of their names. What self-respecting gourmet would consider dining on the mudblower or ratfish, or would deign to be seen in the same restaurant as a hogsucker or a grunt?

Accordingly, the Fisheries Service decided to rename the fish, and in 1973 the agency asked the public for helpful suggestions. The Fisheries Service tallied the responses and concluded that "a need exists for the clarification

and refinement of policies and procedures that govern the nomenclature of fish . . . Obviously, this called for some expert opinions, and so a \$63,000 contract was awarded to a Chicago firm for a feasibility study. The consultants didn't rename the fish, but they did suggest that an "organized framework" was needed. A second study was initiated to "identify and prioritize a set of factors to be used in comparing and organizing the species." The fish were then rated according to flavor, fattiness, odor, color, flakiness, firmness, coarseness, and moistness. It was discovered that 390,000 "fish edibility profiles" were possible. With growing frustration, the Fisheries Service sought help from the U.S. Army, which turned the matter over to a "flavor panel" and a "texture panel." Seven years and \$494,000 later, the fish still have their old names.



Fastnet Light, off the coast of Ireland





## Of Serpents, Monsters - Briney Creatures



By Captain Walt Jaffee

Unknown creatures are fascinating. Especially those in the ocean, for they've been with us the longest. Who hasn't heard of the Kraken, giant squid, mermaids, and other mythical creatures of the water? The problem is separating the mythical creatures from the real.

Mermaids are probably the most mythical of any sea creature. Nearly always beautiful with long blond or green tresses, they are fond of swimming about the prow of the ship on calm sunny days. Occasionally one is found sitting on a rock, combing her hair. Their lifestyle is as whimsical as their appearance. When annoyed mermaids can completely silt in a harbor, bring in dense fog, or cause tidal waves. Many legends have them living with humans and having children by them. But these offspring come in strange combinations, as in the old sea chanty:

"My father was the keeper of the Eddystone light,  
He slept with a mermaid one fine night,  
From this union there came three,  
A porpoise, a porgy, and the other was me."

The characteristics given mermaids are usually similar to porpoise, seals and otters. It's probably these creatures that are the real mermaids, with a dash of imagination thrown in.

The Kraken. Now there was an interesting creature. The accepted text on this creature comes from the Bishop of Bergen, Erik Pontoppidan, who described it in THE NATURAL HISTORY OF NORWAY, (1752-53) as being, "round, flat, and full of arms, or branches." He informs us that the local fishermen agree on seeing it at the fishing grounds where "They see this enormous monster come to the surface of the water, though his whole body does not appear, its back or upper part seems to be about an English mile-and-a-half in circumference, looks at first like a number of small islands, surrounded with something that floats and fluctuates like seaweed. At last several bright points appear, which grow thicker and thicker the higher they rise above the surface of the water. It seems these are the creature's arms, and, it is said, if they were to lay hold of the largest man-of-war, they would pull it to the bottom."

By modern standards, a man-of-war of that era wasn't much. A hundred fifty feet on the keel at the most. Zoologists discount the mile-and-a-half circumference as an exaggeration. But the rest of the description seems to accurately fit that of a school of giant squid. Known to be gregarious, these huge cephalopods have been found stranded on beaches and measured at more than fifty feet.

Giant squid are fact, not fanciful fiction. The only enemy they seem to have is the sperm whale. When whaling was at its peak, flensers often found parts of undigested squid in the bellies and mouths of these behemoths. In the early 1800's Captain Ben Johnson found a squid arm in the belly of a whale that measured 35 feet long, and was as big around as a man's

arm. In that same era Captain Reynolds reported an arm found measuring two feet six inches in diameter by forty-five feet long. These are just two of hundreds of reports.

The scars left by the squid suckers on whale skins are even more interesting. The largest sucker on a squid is known to have a diameter equal to one hundredth the length of the body. This is true to within ten percent. The arms are about two-thirds again as long. The largest scars found on whale skin have measured eighteen inches across. Using our scale, this gives us a beast with a body 150 feet long, arms 250 feet long, and a total length of 400 feet. It boggles the mind, but then so would the existence of the whale if no one had ever seen one.

What of the other briney creatures? We're familiar with the squid, but what about the other serpents and monsters that come in shapes we aren't familiar with? The idea that sea monsters were the creation of men too long on the ocean is dated. As our world has progressed, and become more scientific and cynical, the number of sightings of sea monsters has increased. Were they unreal, logically the number of sightings should decrease. They've been seen by reputable people from all walks of life. In one instance, the Gloucester monster was seen by hundreds of people over a period of weeks in the summer of 1817.

As Sherlock Holmes said, "When you have excluded the impossible, whatever remains, however improbable, must be the truth." Discounting unreliable sightings and outright hoaxes there are at least three types of sea monsters and possibly seven.

Most common of all sea monsters is that resembling "Nessie," the Loch Ness monster. Probably an offspring of the ancient pleisiosaur, this creature seems to be increasing in population. It was first spotted in 1846, and since then there have been 82 reliable sightings of this type of creature, the most recent being in the mid-north Atlantic in 1966. A composite of these sightings gives us something resembling a seal with a very long neck. Much larger, usually about sixty feet long, it's capable of speeds up to 35 knots. It has small eyes and a rather rounded head, seems to have nostrils and thus breathes like a mammal. It's found in all oceans except the polar ones.

While we've discounted the mermaids, there is one type of monster called by some the merhorse. Last seen off the coast of the Hebrides, this creature has been reported 72 times. The head resembles a camel's, with large, lemur-like eyes. Its neck is draped with a mane like a palomino, the back appears jagged, as if hairy. The rest of the body has never been seen, but it is believed to be like our previous monster with four flippers and a length of about sixty feet.

The third most common creature is the closest to a true sea serpent. Its long snake-like body is colored dark brown on top and white on the bottom. Its back consists of a series of humps which might be caused by its means of movement which is verticle undulation. In the larger specimens there is a fish fin on the back, just behind the neck. It comes with a single pair of flippers and has a large, blunt head like a bull. Reported 59 times, it was most recently seen in 1966 off the coast of Lincolnshire, England.

One of the more doubtful creatures looks like an otter with an elongated tail. Its main difference is that it reaches lengths of up to 100 feet. The last reliable sighting was in 1848 and it might now be extinct.

A slow moving sea serpent, capable of only ten knots, the finned serpent resembles the tail of a lobster, with a head. There is an extra row of fins down the back for stability, and speckled coloring for camouflage. Having a head like a hippopotamus, but smaller, in proportion, it lacks antennae or feelers. This one has the true dragon's breath, for this characteristic was reported at almost every sighting. Probably the result of vapor in the expelled air. Having a length of from sixty to seventy feet, it's been seen 26 times, the most recent off Norfolk, Virginia in 1935.

[ Concluded on Page 39 ]







# Hawaii Calling Matson Answers



## MALOLO Herald of a New Era in Pacific Ocean Passenger Travel



OPENING a new era in luxurious and swift passenger travel from San Francisco to the Hawaiian Islands, the new Matson express liner Malolo, now building at the Philadelphia yard of William Cramp and Sons Ship and Engine Building Company, and to be completed in the spring of 1927 heralds a great advance in the Matson line's passenger service.

Since the Matson Navigation Company was founded in 1882 by the late Captain William Matson, the policy of the company has been to build its ships as combination freight and passenger carriers. Starting with one 200-ton sailing vessel the Emma Claudina in 1882, Captain Matson acquired other sailing ships, these carrying a few passengers, but chiefly designed for freight service. One of his earliest vessels, the Matson bark Harvester, carried ten passengers and sailed the distance to Hilo in seventeen days. The Malolo will carry 650 passengers, all first-class, to Honolulu in four and one half days.

As the growing commerce of Honolulu necessitated faster and more regular service, Captain Matson changed from sail to steam. His steamers have always been designed to carry 8000 to 10,000 tons of cargo each and from 100 to 250 first class passengers. The passenger steamers Lurline, Manoa, Wilhelmina, Matsonia, and Maui have all been built in accordance with this policy. The Maui, present flagship of the fleet, completed in 1917, is the largest and finest example of this type of ship.

With the Malolo, however, the company has departed from its previous policy, for this palatial liner is primarily a passenger ship intended for the highest class of travel. The Malolo will establish a new standard for comfort and speed in passenger service from San Francisco to Honolulu. The ship's appointments and equipment will represent the latest in marine architecture and engineering.

Captain Matson's present passenger fleet was built with the idea of possible conversion to transports in time of war. The Wilhelmina, Maui, and Matsonia proved ideal for this service during the World War and carried many troops to France and back. Their large fuel oil capacities enabled them not only to steam across the Atlantic and back without refueling, but also to supply oil to destroyers in mid-Atlantic. The Wilhelmina was particularly adapted to supply oil to destroyers at sea. The Malolo has been planned for conversion to a naval auxiliary cruiser of the first class and

her design will make her particularly valuable to Uncle Sam in the event of war.

At present the Matson line carries approximately 14,000 passengers a year between San Francisco and Honolulu. The Malolo, averaging 500 passengers a trip, but with a capacity of 650, and making two round trips a month will increase the total number of passengers a year from 14,000 to more than double this amount. This increase in the number of passengers will mean a great deal for San Francisco as the 12,000 or more passengers carried by this ship will all spend liberal sums of money for hotel bills and entertainment both prior to their departure and also after their return from the Islands. The company's present plans are to have the Malolo sail every fourteen days from San Francisco. The trip down will take four and one-half days from San Francisco. The ship will remain at Honolulu for two and one-half days and the trip back will take four and one-half days. There will be another stay of two and one-half days at the home port. No call will be made at Hilo. The Matson Line's two present largest ships, Maui and Matsonia, now serve Hilo every two weeks and will continue to do so. Passengers from the Malolo desiring to visit Kilauea Volcano and Hawaii National Park will be taken there by the Maui and Matsonia and also by a new Inter-Island steamer to be completed next year. The Inter-Island's present flagship, the Haleakala, now on the Hilo run, will be placed in service to Kauai, an island famous for its scenic beauty, but heretofore more or less little known to tourists owing to inadequate steamer facilities from Honolulu.

In line with this big development in tourist travel



The Malolo, opposite Diamond Head, Honolulu, as she will appear when finished

to Hawaii, the Matson organization has interested itself in assisting the Territorial Hotel Company, Ltd. of Honolulu in constructing the \$3,500,000 Royal Hawaiian Hotel at Waikiki in a former royal coconut grove, adjoining the Moana Hotel. As Honolulu's hotel facilities are now crowded to the utmost from January to March, also during summer travel season from June until the end of August, the advent of the Malolo necessitated additional hotel facilities in Honolulu. The new Royal Hawaiian with its capacity of 400 rooms will accommodate passengers from the Malolo and will also be available for guests arriving aboard other ships from the Pacific Coast, Atlantic, and the Orient.

To provide entertainment for its guests, the new Royal Hawaiian Hotel will have a recreation center and an 18-hole golf course on the Waialae ranch, about three miles from Waikiki, the new course being necessary as Honolulu's present golf courses are crowded most of the year, particularly in the winter. The new hotel will be surrounded by a 20-acre tropical park of great beauty. The landscaping of the grounds is now being carried out under the direction of R. T. Stevens, a noted landscape architect of Santa Barbara.

The Malolo will dock at the new territorial piers 8, 9, and 10 in Honolulu, these having been completed in the last year. The pier head will be surmounted by a great clock tower somewhat similar to that rising above the Ferry Building at San Francisco. The tower will be known as the Aloha Tower and will welcome the big liner's passengers to the capital port of Hawaii and the mid-Pacific.

The Malolo takes her name from the flying fish which flit out of the sapphire Hawaiian waters like darts of lightning. Her passenger capacity will be 650, all first class. Of this number 480 will sleep in beds and 170 in Pullman berths. There will be 100 rooms with private bath and 50 private showers with toilets. The ship will be 582 feet in length and her great beam of 83 feet, greater in proportion than that of any existing Atlantic liner, will have her excep-

Continued to bottom left column

## Twenty One delightful days at Sea and in Hawaii

This tour covers all expenses, including steamer accommodations, rail and automobile trips ashore, and hotels. You will enjoy surf-riding, outrigger canoeing, visit pineapple and sugar plantations, see wonderful panoramas, native life, and Kilauea Volcano's lake of ever-living fire. Our booklet, "See All of Hawaii," describes these trips in detail. Our folder, "Delightful Days on Matson Ships," tells a colorful picture-story of our steamers and life on board. Send for both.

**\$280<sup>50</sup> up**  
all expenses  
**MATSON**  
NAVIGATION COMPANY

Postage for inquiry to Matson in 1934 would have cost you 2 cents vs 20 today!

Continued from bottom right column

tional steadiness at sea. Her schedule speed will be 21 knots, but she will have a reserve maximum speed of 23 knots.

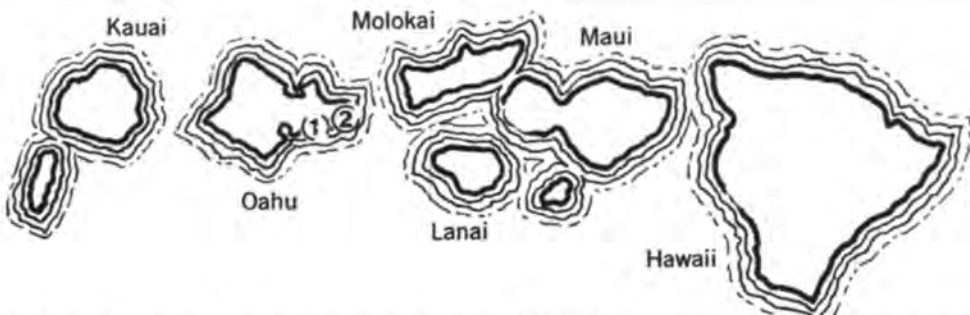
The Malolo's appointments include a dining saloon seating 500 passengers, or 600 if necessary, a gymnasium, swimming pool, beauty parlor, hot and cold salt and fresh water in every bath room, a telephone at each bed, enabling passengers to talk from their rooms with friends on shore when the ship docks at San Francisco and Honolulu, a radio telephone system enabling her passengers and commander to talk with other Matson ships at sea and with San Francisco and Honolulu shore stations, the most modern ventilating apparatus by which the air in each room is changed approximately every three minutes, a ball room, private dining room for special dinner parties,

children's dining and play room, two motion picture theatres, elevators serving the five decks, soda fountain, more rooms with private bath or shower than any other ship in the world, electric baths, photographic dark-room, and many other features.

"Twenty-five years ago the Matson Navigation Company was incorporated and took over the business theretofore conducted by Captain William Matson and associates. Through the sagacity and foresight of its founder, the company has expanded to meet the demand for transportation caused by the development of Hawaii.

"It has always been the unwritten rule of the company to give to the extent of its ability, efficient and courteous service to all its patrons. I attribute a large share of our prosperity to the good-will of our patrons, which is our most prized possession."

# 'Aloha



# Islands



# Matson Progress 1882 to 1926

At the pre-launching luncheon given by President E. D. Tenney of the Matson Navigation Company at the Penn Athletic Club, Philadelphia, to a number of his guests, the history of the Matson Navigation Company was briefly outlined and a number of notable remarks were made concerning the remarkable success of the Matson organization and its bearing on the future of America's merchant marine. We have abstracted three of the speeches here for the convenience of our readers.



SS Malolo [1927] SS Matsonia -II [1937] SS. Atlantic - Home Line [1948] SS Queen

Fredericka (Greek Flag)[1955] Scrapped 1977. Picture furnished by late member Howard Cookson [SK 5-22-1975] while Chief of the Matsonia II. Early call of the Malolo was KII and WMCE after 1931. Matsonia - WMCG. The Matsonia (nee) Malolo made 350 trips with passengers and 60 trips during war years. During the years she had been "home" to many hundred wireless men - many members of the Society.



## A Brief History of the Matson Navigation Company

By E. D. Tenney, Pres. Matson Navigation Company.

**T**HE steamship Malolo is being constructed by the American-Hawaiian Steamship Company under Section 23 of the Merchant Marine Act of 1920, generally known as the Jones Act. On her completion she will be purchased by the Matson Navigation Company and will be put in operation between San Francisco and Honolulu.

It is my purpose to give you a brief history of the Matson Navigation Company and its growth which has led up to the construction of this splendid ship.

In 1882 Captain Matson purchased the little 200-ton schooner, Emma Claudina, and put her in service between various ports in the Hawaiian Islands. He later built the Lurline. This was the first ship built by Captain Matson and the first in which he owned an interest. In those days, ships were generally divided into 32 shares, each person interested buying as many 32nds as they wanted or could afford. Captain Matson managed to borrow enough to purchase 8/32nds.

In 1902, the steamship Enterprise was the next ship he obtained, and just prior to this he decided that the company was of sufficient size to be incorporated, and this was done in the latter part of 1901. The Enterprise had a passenger capacity of 25 and two very inferior bathrooms. The next was the Lurline in 1906, named after the earlier ship. She also had a passenger capacity of 25.

In 1909 the steamship Wilhelmina was built at Newport News. She had a passenger capacity of 146 and 11 baths. She was considered, at that time, a most extravagant venture. I want to tell you a little story in regard to this vessel. Captain Matson was very proud of her and when she was ready for her initial voyage he went to see her with his family and friends. George S. Dearborn, at that time president of the American-Hawaiian Steamship Company, was visiting the city and Captain Matson invited Mr. Dearborn to inspect her. A few days later while addressing, as I recall, the Chamber of Commerce, Mr. Dearborn expressed unbounded admiration for Captain Matson for risking so much in building such a magnificent ship for this service.

In 1917, came the Maui with passenger accommodations for 252 and 32 baths, which was looked upon as very extravagant for Pacific Ocean trade. This was the last ship Captain Matson built and the last voyage he made was the initial voyage of that steamer. He died the latter part of that year.

Now we come to the steamship Malolo, which is to be launched this afternoon. She will have passenger accommodations for 693 and 162 baths.

From this, one sees the general move that has been taking place in this trade—from the little 200-ton Emma Claudina in 1882 to the Malolo in 1926. The people of Philadelphia should be proud that such a ship was built in their city. I want to compliment the mechanics and other workmen on the high quality of the work, as it appears to me to the best of my judgment, when I inspected her yesterday.



EPIC RACE TO HONOLULU ?

It appears that the Matson Liners Matsonia, Lurline, Monterey and Mari-rosa (T/B) are being given an even start on the Honolulu "Sweepstakes Race". (?) NOT SO ! Clever work by a photo-finisher did the trick. (name unknown). It does provide a comparison of Matson's top passenger ships of the time.

**D**O recreation-spot anywhere offers as great an opportunity for healthful pleasure and rare sight-seeing as these bountiful Isles of Hawaii. It is always springtime in Alohaland—a land of natural wonders, of poetry, legend and romance!

Even the ocean voyage itself, across the calm waters of the Pacific, is well worth the trip. Aboard the fast and commodious steamships of the Matson Line you will enjoy an invigorating trip of rest and entertainment. Fresh California and Hawaiian fruits, fish and meats are served in tempting fashion to please your whetted appetite. Matson Line cuisine and service are unsurpassed.

Our folder, "Hawaii, the Tourists' Paradise," explains the trip in detail. Send for it. Or, better yet, come in and let us plan an interesting itinerary for you.



# Hawaii

The Matson Fleet:  
MATSONIA  
WILHELMINA  
ENTERPRISE  
LURLINE  
MAUI

Sailing every  
Wednesday from  
San Francisco  
to Hawaii

## Matson Navigation Company

SAN FRANCISCO



# ADVENTURES ON A "WAR WEARY" DESTROYER



Henry A. Pierce



Destroyer "Reid"—One of the swiftest vessels in the U. S. Navy.

It was in mid-February of 1918 that three of the oldest destroyers in the United States Navy were given orders to proceed from the Norfolk Navy Yard to the Philadelphia Navy Yard for repairs and there to join other destroyers to make up a flotilla to be sent to European waters. Departure was made on a very rainy morning, including the USS MacDonough, USS Decatur and the ship I was 3rd Class Electrician (Radio) on the USS Hopkins. It was intended that the three ships would make the trip within visible range. All proceeded as planned until we came to the torpedo nets at the entrance to the bay where for some faulty manoeuvre and poor visibility the Hopkins got entangled, having missed the marking buoys. That problem was overcome and by now we had lost sight of the other two destroyers. Course was taken towards the open water of the Atlantic and then for a coastal voyage north to Delaware Breakwall some 150 miles north. The sea turned out to be very rough and with heavy fog making visibility very limited. The Captain had to use dead-reckoning to navigate and due to the extremely bad weather even this was undependable. In normal times, when visibility would be good, navigation would be easy and the trip made in about 7 hours at about 20 knots speed. Because of heavy seas we were only making about 10 knots. I believe that it was the Captain's intention to remain as near the coast as possible, perhaps about 20 miles off shore. To his surprise, about four hours after steering north, he came upon a fishing boat and stopped to ask them where they were to aid him in his uncertainty of position. Night was now coming on, when if everything had been normal, we would have arrived at Delaware Bay in daylight. With good visibility he would have been able to see buoys, lighthouses and shore markings, but he had been deprived of these navigational aids because of the rain and fog. I remember him as a greatly worried man.

At a given moment he made the decision to change his course from a northerly one to an easterly, that would bring him to what he hoped would be the opening in the Delaware Bay Breakwall. We were proceeding at a slow speed of about 8 knots, when suddenly everyone was thrown off balance or on deck and the ship suddenly came to a dead stop. There was ice all around us. Dimly ahead were the lights of houses. The ship had gone aground off Lewes, Delaware. Of course the Captain did not know exactly where he was except he was well aground.

Efforts were made to go astern with the engines at full speed but we were solidly ashore. The noise was heard by the people living on shore and amongst them was a Delaware River and Bay Pilot whose house was near. He walked over the ice to the ship, announced who he was and came aboard.

But before he did come aboard, the Communication Officer on board came to me in the Radio Shack with a coded message to be sent to the Philadelphia Naval Station which I immediately transmitted. I never knew what was in that message but I suppose it told of our situation and asked for help.

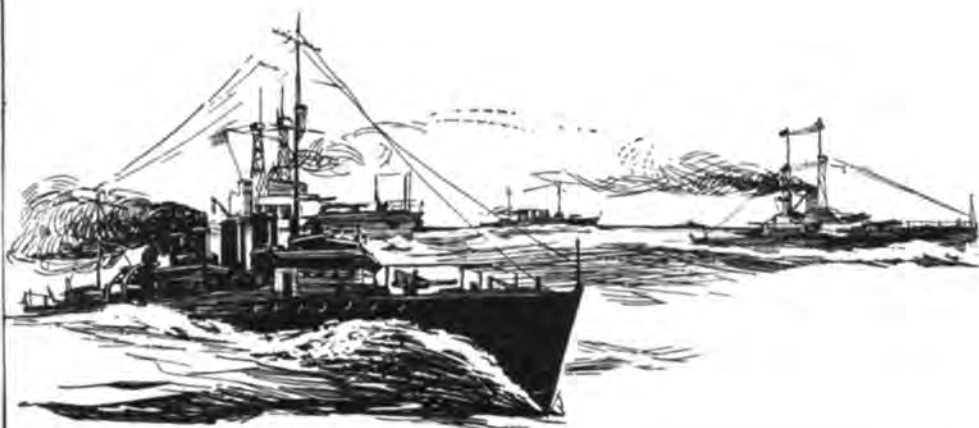
The Pilot told the Captain that he had been a pilot for 30 years and laughingly said that never in his life did a ship pick him up in his backyard to take him aboard. He ordered soundings made and it was discovered that we were drawing more water forward than aft when it should be the other way around. Some material was moved from aft to forward. Water was discharged from aft tanks. Then with the engines going full speed astern, we finally inched our way out into deeper water where the ship was once again free and afloat.

"FOUR STACKERS" -- They were lean and mean ! They had had more hidden 'movements' than a hula-dancer with fantastic gyrations that would stop a clock. It became quite an 'art' on one of these vessels during a storm to merely exist, let alone do some meaningful work such as telegraphing - with hand on key, one leg bracing against a bulkhead and the mill on the deck. That was one of the real experiences and things we like to remember. In addition to 'seeing the world' as a guest (?) of the United States Navy, one also received free roller-coaster rides on the giant dip at no extra charge. Trying to walk up the deck of one of these bucking bronchos (hand through grommet on a cable) feet swept from under one on occasions it became quite an acrobatic feat to reach destination. The trials and tribulations of a destroyer knit the gang together as a usual rule and one recalls the very close relationship we formed. One had to in order to survive. They (the destroyers) were the workhorses of the navy in convoys etc. I think every man who served aboard one of these 4-pipers should rate a gold medal (period).... WAB.

We then proceeded on proper course into Delaware Bay and the trip up the Delaware was uneventful. But I was brought before the Captain in the presence of the Navigation Officer, who claimed he had instructed me to hold on to that coded message and await his orders to send it. This was not true, because he had told me to send it. Evidently that confrontation was needed, to present their case before the Naval District Commander as to how they acted under this emergency and in the records I suppose it was written that the Radio Operator had inadvertently sent out the distress message. Face was saved for them and for me and I was never questioned thereafter.

I might add at this point, that after repairs in the Philadelphia Navy Yard five destroyers, including the USS Hopkins, left for European waters. Our first stop was Bermuda where we coaled up for the next port of call in the Azores. The five left Bermuda together, but soon lost sight of one another in the high seas and bad weather. Two days later we had to return our battered ship to Bermuda. There we found in port one other of the destroyers with a broken mast and likewise due to damage had to return. Naturally we had to return to the United States for repairs and by that time I believe the Navy Department figured these old type destroyers--the USS Hopkins was the sixth oldest ship in the destroyer class--were not meant for duty on the high seas for long periods as needed in European waters. Thereafter we only had assignments of convoying the fleet in manoeuvres along the Atlantic in home waters.

I remember that old ship in rough weather. To stand radio watch I would have to sit on the table, with my back against the bulkhead and my feet propped on the wireless transmitter and hope that the whisker on the galena detector had not gone off its sensitive spot to prevent me from hearing in my earphones. Regardless of the rough time on board destroyers I still say they were good old days even if the Radio Operators had to coal ship like everyone else on board.



Hold 'er Deacon



# The first transatlantic telephone cable

Attempts to send telegrams over cables laid along the ocean floor started 120 years ago.

by Roland Prévost

A hundred years after the first attempt to send telegrams over cables laid along the ocean floor, the only transoceanic telephone service began.

A little before four o'clock on the morning of Nov. 17, 1978, a trawler cut the first transatlantic telephone cable, TAT-1, thus putting an end to a chapter of Canadian telecommunications history. It would have cost nearly \$100,000 to repair the cable. But as service was to be discontinued anyway on Nov. 27 of the same year, the British Post Office (BPO), the American Telephone and Telegraph Co. (A.T. and T.) and Teleglobe Canada decided it would be useless to repair the cable for such a short period of time.

The chapter that ended last November began more than a century ago when our geography was leading us into a series of exploits in the field of telecommunications. About 120 years ago, Canada was chosen as the starting point for the first transatlantic telegraph cable between America and Europe. Though this was a short-lived undertaking, it marked the beginning of attempts to send telegrams over cables laid along the ocean floor.

In retrospect, this may seem like a humble feat, in view of the gigantic communications network that now encircles the globe with its numerous cables, radio relays and satellites. At the time, however, it was an outstanding feat of ingenuity and courage and one that paved the way for greater achievements in the future.

Nearly 100 years later, on Sept. 25, 1956, at 11 a.m., A.T. and T.'s president spoke these words: "This is Cleo Craig in New York calling, Dr. Hill in London." Over a loud-speaker, he heard the transatlantic reply: "This is Dr. Hill in London, Mr. Craig." The response by the British Postmaster General marked the beginning of the only transoceanic telephone service in the world.

## Years in the lab

This achievement was the result of years of laboratory and field work, for in the forties, researchers still knew little about the performance of certain equipment under extreme circumstances and about the shape of the floor of the North Atlantic. For these efforts to succeed, the co-operation of Canada, Great Britain and the United States was needed in the areas of science and technology. It was a telecommunications triumph.



From the time of the first telephones, engineers have had to solve the difficult problem of transmitting high frequency signals over long distances. The invention of triode repeaters finally made possible the construction of the first transcontinental telephone line in the United States and then the first transoceanic radio service in 1927.

However, engineers were still a long way from finding a solution to the problem of conveying speech over a cable more than 3,100 km long located at the bottom of the ocean where the pressure is as much as a half-ton per square centimetre.

The amplifiers therefore had to be resistant to physical conditions unknown in ground communications and had to last at least 20 years. This was a delicate operation: the 299

components of each repeater had to be soldered in 1,950 places. Over a period of 15 years, Bell Laboratories tested various electronic tubes similar to those which had been used in the oceanic cable between Florida and Cuba.

Each amplifier has three electronic tubes. Each repeater receives an electric current sufficient to enable it to amplify the signal a million times. This operation occurs at each amplifier as the signal travels along the cable. The British had extensive knowledge of rigid amplifiers, which they had used in the cables linking Great Britain with Europe. For this reason, they were assigned the contract to manufacture the amplifiers for the link between Newfoundland and Nova Scotia.

The two transatlantic cables had to be sufficiently flexible to withstand damage from the drum of the cable ship. The protective covering for the cables was developed in the United States. In order to obtain the necessary degree of flexibility, the 60 parts of each of the 102 repeaters were sealed in a series of 17 lucite cylinders wrapped in two rows of steel rings, which were in turn enclosed in a copper cylinder covered with several layers of jute and a wire framework. The final product measured 2.5 m in circumference.

All materials used in the amplifiers underwent rigorous testing. All parts were assembled under sterile conditions similar to those employed in operating rooms. Those assembling the equipment worked in rooms which were slightly pressurized to prevent outside air from entering. Everyone was required to wear smocks which were disinfected daily. Certain parts had to be installed with the aid of a microscope. In an adjoining room, experts checked the amplifiers for leaks using a pressurized compartment. A further test was made with radioisotopes in a lead chamber.

## Speech underwater

As early as 1921, technology was sufficiently advanced to transmit speech over underwater cables. In that same year, the Americans laid three cables between Key West and Havana. More expertise was needed, however, for the transatlantic cables.

In 1928, the Bell Company began discussions with the British Post Office in connection with the possibility of manufacturing a transatlantic cable that would not need amplifiers, but the depression intervened. At the same time, considerable progress was made in short-wave transmitting, and interest in the project was abandoned except by a small team which continued to take an active interest in the problems of underwater telephone cables.

About the same time, three factors were to rekindle interest in the transatlantic cable. First of all, new carrier wave techniques were developed enabling several messages to be transmitted simultaneously by the same conductors. Then, there was the development of the stabilized feedback amplifier and long-life components.

In 1938, a model repeater was built, which made it possible to carry out deep water tests on repeaters intended for the transatlantic cables. Again, this work had to be set aside because of the war. However, all was not lost: during the war years, the durability of the repeaters that had been placed in the ocean was tested and the results were conclusive.

In 1950, the Americans laid two cables between Key West and Havana, each 185 km in length with three amplifiers and 24 telecommunications

channels in each direction. Laboratory tests were over — now was the time for the real thing.

## Radio inadequate

During the war, and immediately after, the radio was no longer able to handle the growing needs of transatlantic communication. Calls had to be regulated, and a connection often took several hours. To make matters worse, frequent serious disturbances in the ionosphere made all radiocommunication impossible for hours at a time.

For this reason, Cleo Craig, president of American Telephone and Telegraph, asked a panel of experts early in 1952 to study the feasibility of laying an underwater telephone cable across the Atlantic. Hopes had been raised by the success of the Key West-Havana cables. Discussions immediately got underway with the British Post Office and exchange visits were made by American and British experts.

In November of the same year, the A.T. and T. committee and the British Postmaster General were informed that the Bell system would be appropriate for the section of the cable between Scotland and Newfoundland and the British system for the section between Newfoundland and Nova Scotia.

On Nov. 27, 1953, Canada signed an agreement with the British Post Office, A.T. and T. and Eastern Telephone according to which half of the system would belong to A.T. and T. and the remaining half would be shared between Great Britain (41 per cent) and COTC (nine per cent).

Experts met frequently, sometimes in London, sometimes in New York. At one of these meetings, a major decision was made which would affect future action. Specifically, it was agreed to solve all technical problems without any consideration of rank or nationality. It was in this atmosphere of co-operation that all technical discussion took place.

From the outset, it was evident that the system would have to give priority to telephone communication and that telephoto and telegraph services would be served secondarily as technical, legal and other considerations permitted. The main objectives of the project were identified in this way.

In addition, transmission losses were to be reduced to a minimum, as some circuits would be between 11,000 and 13,000 km long (from San Francisco to Oslo, for example). Therefore, it was decided that the nominal loss permitted would be 0.5 decibels between London and New York, with an allowance of 1.5 to account for temperature and other factors. A number of technical points were agreed upon in this way.

The repeaters were manufactured in the United States. Western Electric built a new plant specifically for this project in Hillside, New Jersey. Submarine Cables Ltd., in Frith, near London, and Simplex Wire and Cable Company in Portsmouth, New Hampshire, built the cables. Representatives from the British Post Office and from Western Electric monitored the work in both plants.

## The Monarch prevails

The job of laying the cable was assigned to the British ship, *Monarch*, which was and still is the most powerful cable ship in the world. On June 28, 1955, the *Monarch* left Clarendville, Nfld., to lay the first section of the cable along the floor of the continental shelf, a distance of 325 km. It then proceeded across the Atlantic to Scotland, laying the remaining 1,930 km of deepwater cable.

Finally, after several days delay due to a hurricane, the *Monarch* reached the town of Oban on September 26. On June 4, 1956, the ship recommenced its journey, this time in a westerly direction, laying the second cable some 20 km from the first. The trip was completed on August 14.

Six weeks later, the entire 6,435 km network was in place, including the underground cable across Newfoundland, the underwater link with Sydney Mines, N.S., and the radio relay stations to the United States and Montreal.

The inauguration of the TAT-1 was only one of several achievements made in the communications field in Canada in 1956. But it was the beginning of the boom in Canadian telecommunications.

## Historical Paper

## Le premier câble téléphonique transatlantique





# EPISODES & EXPERIENCES

Edited by Fred Rosebury

## THE DOLLAR LINE AND GLOBE WIRELESS

Donald K. deNeuf

So far as I know the history of Globe Wireless has never been written. It should have a lot of interesting features, and something about its activities should be recorded for posterity. I have tried to get some data from two old Globers: Mel Hedbourg of ITT-NY and Bill Phillips (ITT-retired). Neither of them are interested in the project. ITT acquired Globe some years ago.

Globe was really a West Coast outfit which was actually set up to operate as a communications system for the Dollar Steamship Line. Its spearheads were the well-known engineer, Ralph Heintz (recently SK) and Jack Kaufman, not so well known; but the company they set up, Heintz & Kaufman, certainly was. Whether they proposed the communications system to old Robert Dollar for his Pacific and Round-the-World fleet of "President" ships, or vice versa, I never knew. At any rate, Globe established radio-telegraph stations at San Francisco (Mussel Rock) KTK, Honolulu, Shanghai and Manila. These were Dollar's prime shore points. Eventually a station at Clifton Lakes, N.J., was also put in operation. In order to obtain licenses from the Federal Radio Commission (now known as the FCC), Globe, of course, had to act as a common carrier, not just a private service for Dollar. It did develop a sizeable amount of point-to-point commercial message service for firms other than Dollar. I believe lower rates were offered than the other established carriers.

It is well known that H & K manufactured many of the SW transmitters for the Dollar Line and for the Globe shore stations. H & K was restricted by patents on crystal control; hence their transmitters were self-excited or master-oscillator (MO) types, with crystal "wavemeters" built into the units for tuning purposes.

As a radio operator I made two round-the-world trips on Dollar Liners, once on the PRESIDENT POLK/KDOZ, and once on the PRESIDENT GARFIELD/KDTC. The Dollar rtw was an established scheduled passenger and freight service, with a Dollar ship calling at each port on schedule every two weeks. It was a popular line with passengers because the ships could lay over at any port for two weeks and pick up the next ship when it arrived. The rtw ports were SF, HU, Kobe, Shanghai, HongKong, Manila, Singapore, Penang, Colombo, Alexandria, Naples, Genoa, Marseilles, Boston, NY, Havana, LA and SF. Each rtw trip ran about 90 days. The crews on these ships were entirely Chinese except for the American officers. All the crews came from Shanghai and spoke only Mandarin. When we reached HongKong they couldn't talk to the local Chinese any better than we could because there the primary language is Cantonese.

The radio crew on the rtw ships consisted of two operators. We were required to perform the usual radio duties, including time signals, weather, press and so on. We were off duty upon arrival at a port until departure time. This permitted interesting side trips. Once I left the ship at Suez and took a train to Cairo; the other operator carried on alone until the ship reached Alexandria, where I rejoined it. He left the ship at Naples and went to visit Rome while I carried on to Genoa where he rejoined the ship before we sailed for Marseilles.

The PRESIDENT POLK was equipped with a 500 kc (MF) quenched-gap spark set and a Federal 2-kW arc for 2400 meters. The GARFIELD, however, in addition to the spark, had an H & K "shortwave" transmitter and receiver; the performance was very good. I remember holding two-way solid contacts with KPH while in the Mediterranean area. Come to think of it, when I was on the Dollar ships in 1928 and 1929, I don't think the Globe shore system was then operating. I believe Globe wasn't established until late 1929.

Incidentally, 1929 was an "establishing year": Globe, Press Wireless and Aeronautical Radio were all established that year!

We know that Dollar also operated a fleet of larger passenger/freight vessels (also named after presidents) which ran schedules between SF, HU, Kobe, Shanghai, HongKong and Manila. I seem to recall that these ships carried three radiomen, but I don't remember why this was.

I am wondering if Thorn or some of the other SOWP members could develop more information about Globe, H & K and Dollar? Invitations are extended to those who have sailed in or worked these organizations or have information about them, to send in whatever data they have. Maybe we can generate some comments from old Globers who may be hiding in the woodwork! How about it?



SOWP member Donald K. de Neuf (117-SGP) receiving HOUCK AWARD for 1978[\*]. Award was presented by Robert M. Morris (W2LV) SOWP TA-11 (at right on behalf of AWA at their fall meeting. [\*] Research and recording of the early history of wireless.



RADIO OFFICER Donald K de Neuf (117-SGP) Charter Member taken in 1925 aboard the SS Matsonia - WMP. Don was a 'pink ticket' man in those days.



"I WISH YOU WOULDN'T WEAR THAT OUTFIT, SIMMS, EVERYTIME WE LAND IN ENGLAND."



# YE STERDAY

## Letters:

### TO THE EDITOR:

Received SPARKS JOURNAL Vol.4 No.3 and after reading the first article about Miss Packer I was unable to lay it down until I completed reading about the White Dolphin (a four stacker). We called them Porpoises. Our WWI destroyer would be led by them when crossing the Atlantic, always in small schools, also in the Mediterranean as we laid from Gibraltar, Istanbul, Odessa and a few other ports in 1922.

We were second to go to Smyrna to assist the Greeks when the Turks cleaned them out. We were busy taking the poor people to Salonika.

The most interesting articles were: Olive J. Roeckner's (VE7ERA SOWP 2891-V) - and even to a 79-year old man she is a knockout; the one about Mrs. Lodi Yarbrough; is quite a gal for a late starter; and Ray Zerbe's Log. Oh, I kept a log too, but that was a duty; Ray Zerbe's Log is sure something to be proud of. I was transferred to the bridge as Signalman and QM. I was also transferred from USS STEWART to the USS McCORMICK as the only Sparks aboard - but the next thing I knew a 2nd RM came aboard so I had to take the upper bunk. Next, a 1st Cl. RM came aboard and I had to find a bunk with the seamen. I had been helping the night watch signalman with blinker, also asking a lot of questions about flag hoists, so the Chief Quartermaster asked me if I wanted to transfer to the Bridge. I sure did; next thing, we had shoved off for the European Station. The USS MARYLAND was at anchor at Newport, RI when we left. The old UTAH, with caged mast, was the flagship at Gravesend, England; I used to take guard mail to her. Admiral Black was on the USS SCORPION at Istanbul.

Regards  
Darral C. Priest 1180-SGP  
302 Eastern Ave  
Plainfield, IN 46168

### TO THE EDITOR:

Enclosed is International check for \$25 U.S. to cover my dues to the SOWP for the years 1982,3 and 4. I expect the renewal reminder is stuck in the mail somewhere due to one of the all-too-frequent strikes we seem to have these days.

We have seen your recent bad wx on our TV news here and it sure looks grim; likewise the wx in Europe. The XYL and I were in Europe this time last year and we are sure glad it was last year!

Last issue of SPARKS JOURNAL about the tall ships was terrific; have never seen too many tall ships except in movies, but some years ago was able to go over the Chilean Navy Training ship ESMERELDA when she was in Sydney here, due to the good offices of her Ch.RO. A fine 5-masted ship and very interesting. The masts made fixing of aials rather a problem but in spite of this I copied her when she was off the coast of New Guinea - about 2500 miles north, on 500 kcs; as I had taken the message down it sure surprised the Ch.RO when I showed it to him! She had a pretty high-power rig, about a kW on all frequencies I gathered, but he was still surprised.

Close now, and take the opportunity to wish you and yours all the best for 1982, and may it be your kind of year.

-Urs with vy 73, Sincerely  
Norman Burton TA-21  
130 The River Road  
Revesby, NSW Australia 2212

### TO THE EDITOR:

Thank you very much for your letter, also about looking up John Hubbel's call for me. Should have been in 1920 list, I think. He lived in downtown Los Gatos about two blocks to the center of town.

Another man you would like to hear about was Steinmetz\*. He had a nice place up in the hills above town. We used to see the old man come down past our house in his electric car in those days, also saw him downtown, always smoking a cigar. When asked about him people would say "That's Mr. Steinmetz." It meant nothing to me then as I was only 11 years old; but now plenty.

About old marine operators: well, the most colorful one I sailed with in the lumber fleet in 1957 was as a relief for our regular operator. He told me many tales of sailing with Capt. Matt Peasly of Jack London's books on ships to Australia, New Zealand, South America, etc. on the old square riggers.

I saw him once since then. He lived in Long Beach; I should have written his name down. He offered me an Audion tube and a pair of old Murdock 'phones, but I didn't press it. He must be a Silent Key by now. I sure remember his tales.

The other one was an old man in 1963 by the name of Jensen<sup>1</sup>; he was in the Alaska run back in 1912. He had a "Certificate of Skill" for his first license. He was 85 in 1963, retired in 1964.

- 73s  
Edward C. (Bill) Silva WA6UVK  
553 Corsicana Drive  
Oxnard, CA 93030

\*Charles Proteus Steinmetz 1865-1923, famous G.E. engineer who developed a.c. theory and transmission.

<sup>1</sup>Could that be Rudolph M. Jensen? SOWP 1715-SSGP? (Ed.)

### TO THE EDITOR

Thank you for inserting my request in the SKIPPERS LOG, Issue 81-5 (which has not reached me so far). The response was immediate: I received copies of schematic from W2BVS (Fred Barkalow 3640-P), W2DHI (Bill Schnarrs 3323-P), W3EY (Cole Beeson 3334-P) and W0OEP (Joe Pavak 57T). Also W6FGE (Mick McDaniel 3652V) asked me to approach H-I Manuals, Inc. for a copy. W3EY (Cole) has also promised me a copy of his spare manual which will be most welcome. There are two or three other amateurs in this country who possess this wonderful receiver and often ask me for advice when something goes wrong. I do not like to send them my manual in case it gets lost in the post but with a spare one I will be in a better position to help them keep their receivers in peak condition - just as I have always kept mine.

Although I have thanked each of them individually, I wish to express my gratitude through one of the publications of our Society and show that members of SOWP are ever willing to help a brother amateur in need. This is one of the advantages of being a member of such a close-knit group.

With warm regards to you and all members of our wonderful organization. Hope 1982 ushers in an era of peace and friendship among nations. We need peace as much as we need food and drink.

Yours sincerely,  
Dady S. Major (Lieut-Col.)  
867-P VU2MD  
Petit Mansion 85 Sleater Rd.  
Bombay 400-D07 India



[SERENDIPITY]

P O T P O U R R I



## The Rustbucket Herald



### SAVED BY BLINKER

Loren A. Disper

Mr. Camille's dramatic blinker adventure reminds me of an interesting and vital blinker experience I had while aboard the S.S. Admiral Y.S. Williams/KJZT. It occurred while we were bound for Singapore shortly before America's entry into WW II.

The whistle on the speaking tube sounded in the middle of the night, and when I answered it, the Captain told me to get up on the bridge. When I arrived on the bridge I saw the vague outline of a ship off the starboard side (Probably a British naval vessel) that was signalling to us with her blinker light. I was no ace at reading lights, but I managed to receive a message that said: "YOU ARE NORTH OF THE SWEPT CHANNEL." In other words, we were headed directly into a mine field. I then asked if Raffles Light was lit. It was.

The Captain ordered a course change, and we made our way safely into Singapore.

## "UP THE CREEK WITHOUT A RUDDER"

Arthur Lockerbie

The Canadian Pacific steamship's immigrant ship "Beaverbrae" was built in Germany and originally named the "Huscaren" after a mountain in South America. She was designed to carry 40 passengers in cabins on the boat deck and promenade deck. There was a swimming pool on the bridge deck behind the stack (the tank was supported by the boat deck) and a salon and bar on the promenade deck. She made one trip to the Argentine with Herman Goering as a passenger and then World War Two began. She went through the war as a submarine supply ship. The Germans added more accommodations on the boat deck with a "krankenhaus" or hospital on the bridge deck aft of the stack and pool area.

After the war, she was taken over by Canada for reparations and sold to the Canadian Pacific. The cabins on the boat deck were used by extra staff -- Second and Third Radio Officers, doctor, Second Steward, etc. The bar and the cabins on the prom deck were turned into 8 and 6 bunk cabins and the upper 'tween deck was turned into a cafeteria and open passenger sections with three-decker bunks. She carried over seven hundred and seventy immigrants each westbound passage from sometime in the late Forties until the summer of 1954. I do not know how many people she brought to Canada but I made 14 trips from June '51 to March '53 so she must have increased the population by 50 or 60 thousand altogether.



S.S. BEAVERBRAE of the Canadian Pacific Line. Lockerbie trips on the passenger ship which brought at least 50 thousand immigrants to Canada in the early 'fifties'. Call was "VCPQ"

We left Montreal in October, 1952, just out of drydock bound for Southampton, England, with a load of grain and two mental deportees. Coming down the river on the 4 to 8 watch Sunday morning the rudder dropped off. We had good weather to start with and we laid there just off Cap de la Madeleine all day Sunday and Monday. Monday evening the Foundation Frances, a large tug with W/T and R/T, arrived and also the Foundation Vera, a smaller tug with R/T only. We got everything ready to take their lines but the Frances was stopped about a mile away and not coming any closer. The Captain came into the shack and asked me to tell the Frances we were ready for the tow line when back came the answer, "Sorry, old man, we just lost our rudder."

The Vera was too small to tow the Beaverbrae so we started off using the tug for a rudder. We had no R/T but we tuned our main receiver to 2182 and the MDF5 direction finder to 500 and worked the Vera through the Frances or the coast stations. The Frances made her way into Gaspé harbor with a jury rudder -- a bunch of old wooden gratings over the stern. We lost contact for a couple of hours when the operator aboard the Frances was knocked cold by a wire rope that broke and hit him on the head.

We got into a gale in the middle of the Gulf of St. Lawrence and made our way sideways from Bird Rock to Cape Ray NFLD. My old friend Captain Turner from my days on the tug Banskot was Captain of the Vera. We would drift for a while and then I would hear Captain Turner ask VCN Grindstone to tell us to give her a kick ahead to keep his hawser from fouling our propeller. I would have the word to the wheelhouse before VCN got it to me.

Then the Foundation Josephine Second arrived. They had an operator but no W/T. That was installed later. She was newly acquired by the Foundation Maritime. Anyway at least we could work the tug direct and after they tried unsuccessfully to tow us and keep us straight, we took the two tugs astern and headed for Halifax like a big fat woman with two dogs on leashes.

We reached Halifax Sunday afternoon, a week after losing our rudder. The grain went in storage, the deportees went into the Nova Scotia Mental Hospital in Dartmouth, the ship went on the floating drydock and I headed for home. Most of us had some time off. I was home a month and the Second and Third took off for a while each. After the new rudder was installed we took up our voyage where it left off.

Number One lifeboat -- the Captain's boat -- was a motor boat with a radio shack actually built in, with a quenched gap transmitter and a receiver for 500 only. It was never used, thank goodness. Now they have a cover over the entire boat.

STORM in the Gulf of St. Lawrence and ship without a rudder. Quite a predicament to be in. Use of a 'jury-rudder' and a small tow-boat which did 'rudder duty' assisted the Beaverbrae to reach port.



ARTHUR LOCKERBIE - 2234-V

"Sparks" on the CP immigrant ship SS BEAVERBRAE/VCPQ circa 1951 when the ship lost her rudder. Later Arthur worked at VCO and VCM. He sent an SOS from the Point Pelee Park/VDGZ in 1944. His first assignment was in 1942 on the SS Randa. QTH is Sydney N.S.



# Roaming The Globe



JOHN K. HOLLAND

## John K. Holland—Pioneer Wirelessman

BY—CYP FERLAND 770-SGP

Pioneer J.K. Holland arrived in Canada in 1928 and enjoyed a very interesting career in the telecommunications field. "J.K." as he is known to us, spent the first two years of his seafaring career on the bridge but the outbreak of the first World War upset his plans. In January 1917, he decided to lay down the sextant and pick up the key. Like many others who went to sea, he had a run-in with the enemy and came off second best. He was mined in the North Sea and torpedoed in the Mediterranean. It is interesting to note that he was one of the few operators of the First War who was mentioned for meritorious conduct while in action against the enemy. After the cessation of hostilities, he sailed on coasters, tankers, freighters and liners and was fortunate to visit all the important seaports of the world.

It is the accepted thing to hear of the "SOS" call going out in cases of shipwrecks, torpedoings, bombings, etc., but J.K. had the unique experience of flashing the distress signal for armed assistance when a mutiny broke out on board the "WAR SOLDIER", the ship on which he was serving. Mutiny to most of us is an ugly word, meaning desperate deeds by desperate men and in this instance brings back memories to our hero.

The story begins with a trip to New York to pick up a highly dangerous cargo of 280,000 drms of petrol. Many of the crew members had signed on with the sole idea of getting a free passage to the United States and then deserting the ship. This was a very rough passage in bitter cold weather and storm-tossed seas. Everyone was exhausted after a spell on deck in 27 degrees below zero and grew more discontent with each passing day. As expected, upon arrival in New York, the crew deserted the ship and only twelve officers and two wireless operators were left on board. A new crew had to be found. It seemed easy but Lady Luck was once more against the "WAR SOLDIER" and her Master. Out of sixty who signed on, it developed that there were 59 undesirable characters. After leaving New York for Capetown and East Africa, trouble broke out. The crew lounged on the deck with their hands in their pockets and grinned impudently when officers gave orders. They broke into the store-room and looted the stores, threatened the cook and beat the chief engineer into unconsciousness. When they were threatened with drastic action, they kept together and armed themselves with knives and spanners. They outnumbered the officers 5 to 1 and in order to avoid bloodshed, the skipper changed his course to St. Lucia. However, in the face of loaded automatic revolvers, the mutineers retracted and twelve of the leaders were put in irons. An "SOS" was sent out by J.K. on the Captain's orders for armed assistance and H.M.S. Constance was diverted from escorting the H.M.S. Renown to New Zealand with the Prince of Wales. Immediately after the arrival of the Constance, the mutiny was dealt with swiftly. A new crew was signed on at St. Lucia and they started their journey from South

Africa to Beira. After describing this terrible adventure, "J.K." remarked, "Believe me, I never saw a ship so jinxed and was I glad to get back to London after 19 months on her." The complete story was published in the "Wide World" magazine some years ago.

Another interesting experience at sea was the "SOS" call on June 27, 1927, by the BAYRUPERT in Hudson's Bay when she struck an uncharted rock off Cape Harrigan. The call was first picked up by "J.K." while serving on the motorship "MOVERIA". He dealt with radio traffic between the stricken ship and Belle-Isle station until the Government ships "KYLE" and "STANLEY" approached the "BAYRUPERT" and removed the survivors.

"J.K." also served on the "DORIC", "MONTROSE", "MONTCLARE", "LETITIA" and the last being the "ADRIATIC". He then took a job with the English Marconi and resigned to come to Canada where he joined the Canadian Marconi Company. He was transferred to Drummondville and worked with that company until the Canadian Overseas Telecommunications Corporation took over the Canadian Marconi Company's assets in Canada. He travelled on many occasions to Newfoundland on radio work in connection with the laying of Trans-Atlantic cables. The expansion of the Drummondville Station was done under his supervision. On July 1, 1957, he was appointed Supervising Technical Assistant at Drummondville a position he held until his retirement on October 31, 1962. He now resides in Hamilton, Ontario.

## Wooden Ships

Wooden ships and iron men—we've all heard that quip. In the days of sail it was most likely true, however I can certify that it doesn't apply to steamers with wooden hulls. The crews of the "smokers" don't have to climb the rigging in howling gales so that most of the iron has been bred out of them.

When we were very young it was our good fortune to sail, as "Sparks," on a wooden hulled steamer, and a side-wheeler at that—the SS Bay State (KRE), of the Eastern SS Company, on the night run between Boston and Portland.

The Bay State was a one-operator ship. We kept watch from sailing time—5 PM—until midnight, unless some emergency kept us at our post in the shack after that hour. Our chores finished we would visit the galley for a snack, and then descend to our sleeping cabin, which was located well forward and deep in the hull so that we had to keep our portholes closed most of the time to avoid getting a salt water showerbath.

Our memory of that ship is not of the high pitched "sync" transmitter—the only one of its kind in the Eastern fleet—nor of the grouchy skipper who didn't believe that wireless was necessary, or of the big double steering wheel in the pilot-house that was used like a tiller—wheel to port if you wanted the ship to go to starboard and vice versa, or of the pat pat of the big paddle-wheels. The memory that counts is that of the sounds generated by the wooden hull itself—the creaking of timbers as the ship rolled. A sound a little like a nail being withdrawn from hard wood with a claw-hammer, but muted and continuous, changing pace as the roll reached its limit and reversed. A nice sound, a soothing, comforting sound that made drifting off to sleep very easy.

[\*] CYPRIEN 'Cyp' FERLAND

"Cyp" Ferland was one of the Society's dedicated members in Eastern Canada until his passing five years ago on March 18 1978. He served at many coastal and ship stations starting his career in 1916. He has furnished the Society with the pictures and history of many Eastern Canadian stations. We hope to publish these, supplemented and updated by those furnished by Spurgeon G. Roscoe at an early date.





"PORTS O' CALL"



Member John K. Holland 818-SGP furnished this picture of 'Cyp' Ferland, taken from "SPARGO" at time of his retirement in 1962 as Supervisor, Central Telegraph Office, Canadian Telecom Corporation, Montreal. "Cyp" entered Canadian Marconi service in 1916 at the Grosse Isle Station VCD. He also served at Father Point/FCF; Heath Point/VCI; Harrinton/VCI; N. Sydney/VCO; Louisburg & Glace Bay/VAS; He sent SOS calls from the Canadian Recruit Dec. 20 1918 and from the Canadian Squatter in Feb. 1922 when that ship sprung a leak 500 miles East of Cape Race.. WAB.



## Flashback:



## Early Canadian Wireless History

Data furnished by 'Cyp' Ferland

The suggestion regarding the SOS CQD CLUB is a good one. The disasters of well known giant passenger ships are universally known but wrecks of ships of small tonnage such as freight ships (commonly known as tramps), tankers, fishing and sealing ships, trawlers, etc., are easily and quickly forgotten, so, please comply with the Editor's request and send in your story to be recorded for posterity . . . here is mine.

### THE WRECK OF THE "CANADIAN RECRUIT" (XVK) IN 1919

On December 8, 1919, a bitter cold morning (25 degrees below) the Canadian Recruit sailed from Montreal for Cuba and Jamaica. The first part of the voyage was very slow, ploughing through thick ice all the way down to Quebec, especially on Lake St. Peter where the channel was very narrow and extremely dangerous due to the removal of buoys for the winter season. Stopped at Quebec on December 10th, for additional cargo and then had to wait until December 16th, for favorable weather conditions to proceed. It was a hazardous decision as the Canadian Seigneur (XVS) (W/O E. Hodgson) having sailed a few days earlier was reported in deep trouble and requiring the assistance of the ice-breaker "Lady Grey."

At 10 P.M. on the same day, surrounded by heavily packed ice, the ship went ashore at low tide on St Ann shoal, however, the strong current pulled us off at high tide four hours later. Unfortunately the rudder had been broken and carried away with the ice. The ice-breakers "Montcalm (VDJ)" and "Lady Grey (VDL)" were advised of our precarious position and requested to render assistance if at all possible. The Lady Grey had to stand by the Canadian Seigneur and the Montcalm was too far away, close to Heath-Point Anticosti where they were to remove the wireless staff and afterwards proceed to Belle-Isle (VCM) to pick up the operators who were near starvation, depending only on the killing of the odd wild fox for survival. We were helpless, at the mercy of ice and currents and went aground again a few hours later on Hare Island, off again and finally at Vache Point, three miles below the entrance of the Saguenay River. The crash when going over a sharp reef was quite impressive and the bottom was ripped open. After a quick inspection by the Captain and water rising rapidly in the engine-room, I was instructed to send the distress signal, giving our position and extent of damage. Although I did not see any advantage in doing so, I performed my duty. Acknowledged immediately by VCF and XVS. After the engine and dynamo had stopped, having no emergency set aboard, there was nothing more for me to do, so, like others I ran for the life-boats, one was already on the ice with half of the crew and drifting away. When the Captain saw me, he told me to go back to the wireless cabin, listen to what was going on and report.

Calls from VCC, VCF and XVS remained unanswered of course. Few minutes later, the Captain sent for me and the messenger, myself and the Captain were the last ones to get aboard life-boat #2. The boats were too big and heavy with crew members and personal belongings, unnavigable conditions, fortunately my last message had been relayed to Tadoussac and within a short time, eight canoes manned by two each, were able to pick us up and we reached the shore at Escoumains, many suffering from frozen toes, ears, cheeks, etc. Three days later we were picked up at Tadoussac by the Lady Grey, taken to Murray Bay, by train from there to Quebec and discharged.

All through that ordeal, I slept no more than ten hours knowing my parents were very worried, I kept them informed by Marconigrams daily and I am sure their prayers helped me to keep up my courage and strength.

During the WWI war, approximately 60 ships were built by various Canadian Shipbuilding companies for the Canadian Government Merchant Marine, the names of all but one ending with the letter "R" to name a few: Canadian Ranger, Canadian Harvester, Canadian Sealer, Canadian Settler, Canadian Squatter, etc., the exception being the "Canadian Recruit" and it was considered a bad omen. She was indeed unlucky. After the mishap described above, the Recruit was refloated the following spring, repaired and back to sea. The following year, she was gutted in St. Johns harbour and after a few months in dry-dock back into service. Superstitious people would have changed the name before sending her out to sea again. It was not so and her unlucky destiny continued. Some months later she went down to the bottom of the St. Lawrence after a collision with another tramp, at Lower Traverse, just below Crane-Island and was never refloated.

## How to Win Friends

Back in 1915 the skipper of our British blockade runner, the SS Cambrian (MNT), didn't like wireless operators—a waste of manpower and space, said he. And the "Old Man" showed his distain for "Sparks" as only a crusty old time skipper can.

One black, stormy November night, while zig-zaging in the Danger Zone, bound for France, one of H.M. Royal Navy destroyers pulled alongside and started blinking code light signals from its bridge, because radio silence was in effect.

Suddenly the voice tube, connecting the bridge and shack on our ship, whistled and I answered. "Sparks, come to the bridge," shouted the skipper. No one on the bridge could read the Destroyer's blinker, but the non-essential "Sparks" could.

Shivering, soaking wet in the fridged rain and hail, I read the Navy ship's signals and answered back with a flashlight, as directions were given for a course that might avoid submarines.

From that night on the Skipper treated me like a human being.



## THE

Now Part of the New England Wireless &amp; Steam Museum

## PT. JUDITH WIRELESS

Oldest Surviving Wireless Building in the U.S.A.

## STATION

BY—FRED ROSEBURY

From the 1982 Report of the MUSEUM (by permission)

Mr. and Mrs. Albert Celeme of Narragansett, R.I. have given the 2½ story station house of the old Point Judith coast wireless station (call letters PJ). This accession is spectacular both in size and historical importance; it is perhaps the oldest building built expressly for a wireless station surviving in the world. PJ was in operation from 1903 through 1910; it was the key station of the MASSIE WIRELESS TELEGRAPH SYSTEM. Massie beat Marconi in outfitting all the vessels of a single steamship line with wireless: the Fall River Line has this distinction.

To a radio man, going into Massie's station is like going into a time machine. The site is among the dunes right on the edge of the Atlantic Ocean. The building is remarkably unaltered from the day it was built. The interior is entirely finished in narrow tongue-and-groove varnished siding. The place for the antenna lead-in is as it was when built with large Elektrose insulators of an uncommon type used to hold the 200-foot wooden lattice tower. These were still stored under the building. In the attic along with spare foil-covered glass-plate condensers was stored a quantity of extra heavy copper antenna wire. Buried

in the sand are numerous Edison-LaLande primary cells and lead-sheathed power cables to the separate battery house. In those days there was no commercial power to that desolate site.

The station has two rooms upstairs and two similarly-sized rooms downstairs. It is the Museum's purpose to restore the Massie wireless equipment as it was in one of the upstairs rooms. The other three rooms will provide much-needed office space and additional display space.

The acquisition of this building is an exceptional event. Moving it to the Museum 20 miles away will be no easy task, but it will be accomplished. The concrete foundation with a full cellar is now ready. The moving crew consists of Jeff Berry, Mark Beezer, Charles A. Moore III and Jonathan Stevens, with Mr. R. B. Hanson providing the engineering wisdom. All these men are oldhands in conquering challenging problems.

As the Museum neither seeks nor accepts government grants and as the directors are extremely frugal, the institution is in better shape than most similar ones. It is astonishing what gets done thanks to our capable volunteers. Nevertheless the Museum is seeking support from voluntary contributions and will be most grateful for any such help to forward its purposes. The Museum is a strictly nonprofit institution. Please address communications to:

THE NEW ENGLAND MUSEUM OF WIRELESS AND STEAM, INC.  
Tillinghast Road, East Greenwich, Rhode Island 02818  
Robert W. Merriam, Director. Tel. 401 884-1710

## Drifting

An Actual Experience Narrative of Adventure,  
the Scenes of which are Laid in  
Tropical Seas

By Alexander Schneider



IF you follow the sea long enough you'll surely meet with adventure. That has always been my contention and fact bears it out. So when I found myself in the perils described in the following recital I was not greatly surprised.

My story has to do largely with the D. N. Luckenbach, an American freighter, which had been sent to a drydock in New York, and there refitted with oil-burning engines. I joined the ship in New York in sole charge of the wireless equipment which had just been installed. Then we left for Norfolk, where we picked up a cargo of coal, and cleared for Rio de Janeiro. The voyage to South America passed pleasantly enough.

We left Rio on the northbound trip without an ounce of cargo or ballast in the holds. Abreast of Pernambuco we found a favorable current that bore to the northwest at a speed of three knots an hour, which, added to our own rate, made a snug little total each day of distance covered.

On the night of June 5th, at eleven o'clock, I rose from my set preparatory to turning in, when I was arrested by a strange tremor beneath my feet. This was followed by a crashing and jolting which drove me out on deck to seek the trouble. I peered down the

engine room grating and then looked at the decks which seemed in the darkness to be heaving up and falling back like the inflation and deflation of a toy balloon. With a final rending crash that staggered me the vessel came to rest, rocking gently in the trough of the waves.

Immediately officers and crew tumbled out on deck inquiring regarding the trouble. The engineers soon found out that a propeller shaft had been broken. In fact, it was the extreme end section, the tail-shaft, which had been fractured. A scaffold was rigged over the stern and preparations were made to remove the broken shaft and replace the broken section. If this plan had been feasible, there would be but little to relate. But it was not, the chief engineer declaring that extensive repairs were impossible on the open sea.

The accident had occurred sixty miles off Cayenne in French Guiana while we were headed for Trinidad, 800 miles away to the northwest. The three-knot current continued in our favor and we drifted toward that port at rates of speed varying from twenty miles one day to 120 miles on another. The last record was made with the aid of the wind, an offshore breeze that we caught in crude sails made of the tarpaulin hatch covers. Rigged to the stays and booms, they belled out nicely. They were a constant source of worry, however, for sudden squalls

ripped them down on more than one occasion.

Seventeen feet of water had been admitted into the forward hold in order to weight that end of the ship down and bring the after end clear of the water so that repairs might be carried out over her stern. This helped not at all, as we lacked tackle heavy enough for moving the propeller, which, with the broken section of shaft, had been pushed and jammed securely against the rudder-post. We swung about on the bow of our ship as if on a pivot, and it became plain that a strong wind might capsize us. An attempt was made to empty the hold of water, but the pumps were clogged with the residue of the coal dust that had sifted to the bottom from our southbound cargo. Then the boson and a sailor, defying the heavy timbers that washed about in the hold with each surge of the water, dove repeatedly to the bottom, and in two days succeeded in freeing the pumps. This accomplished, we were soon clear of the danger of capsizing.

All this time I was far from idle, going on watch at seven in the morning and often retiring after one o'clock the next morning. My first message was to the owners in New York. This was sent via the Barbados wireless station, 900 miles away, and ordinarily out of my communicating range. During the week that followed the captain was busy considering salvage and towing offers.

Arrangements were finally made with a firm in Trinidad and we gave our probable position for the following noon. Then we settled back and waited for the tug which, we hoped, would bring us into port two days after it ar-

rived. But the next day dawned and passed without any signs of our tow. Meanwhile an attempt was made to attract attention by sending up columns of smoke during the day and burning colored signals at night. And still we drifted. When the island of Tobago came into sight a swift current swept us quickly sidewise toward the Grenadine Shoals, a low-lying group of coral reefs consisting for the most part of small islands.

As we drifted, the lead was heaved and when bottom was finally found at twenty fathoms, over went our anchor. Fortunately it held and, with the nose of the vessel headed out to sea, the ship's company felt that the peril was lessened. However, the dangerous current broke and swirled past the vessel, the coast of Little Martinique, seven miles distant, being in view all day.

That night the tug appeared. She had made several searches for the Luckenbach and on one occasion had put into St. George's to obtain our position by cable from the wireless station in Trinidad.

Our troubles were at an end, however, for the tug, after bucking the current for a full day, steamed off with the Luckenbach in tow, headed for Trinidad. Then life once more resumed its normal proportions and I was free to rest after my long vigil in the wireless room.

Our drifting totalled more than 760 miles and extended over a period of almost two weeks. While the stock of food had been sufficient for a longer time, the question of how long our water supply would last had begun to worry us, and, although none of the ship's company had suffered privation, all were glad when the Luckenbach was once more in a safe haven.

THE WIRELESS AGE

JANUARY, 1917



The author of this article reclining on the canvas cover of a lifeboat aboard ship



# THE OPERATOR AND THE TRAMP

J. Edward Jones

The Viewpoint of a Wireless Man assigned to a Tramp Steamer --Facts about the Rolling Stonewhich acquires none of the moss that gathers on ruins but gains brightness by contact with diversified interests--A Journey that afforded a Chance to Rub Elbows with Incas from the Tropic Mountains, Zulus from the Veldt, Enigmatic Japanese and Stalwart Siberians.



**P**icture yourself strolling about the plazas of tropical cities to the accompaniment of tuneful music with the southern cross bright and clear overhead, and soft-eyed, dusky-skinned senoritas moving her and there with languorous grace; imagine seeing the Inca in the fastness of his mountain home, Zulus fresh from the broad veldt, high-browed Ceylonese on their own picturesque island, enigmatical Japan, the frozen wastes of dread Siberia and Egypt, with its pyramids and mighty river, its veiled maidens and perplexing atmosphere of mystery.

Sounds fascinating, doesn't it? Well, the reality is even more delightful than the description. Moreover, the opportunity to experience the thrills and tingles born of actually journeying to the interesting places referred to, to visit on an average a different country each month, is open to him who sits in the wireless cabin of a freight steamship.

In a previous issue of THE WIRELESS AGE was published an article entitled "Is the Game Worth While?" which caused considerable comment. However, it did not mention the wireless operator on the tramp and the ambition to tell the story of the radio man from the former's viewpoint was one of the reasons that prompted me to write this article. This I feel measurably qualified to do since I myself am a freight operator.

I have heard operators express much gratification upon learning that they had been assigned to passenger steamships, their satisfaction doubtless being due to visions of scenes of gayety and animation. These men could not grasp the advantages of being a freight operator. From my viewpoint the most desirable feature of a post on a passenger liner is the opportunity to handle a larger amount of traffic than falls to the lot of the man in the freighter's wireless cabin.

But the recital of my experiences rather than any argument I could present will, it seems to me, better impress the reader with the advantages which we of the tramps enjoy. Therefore I will hurry on with my story.

I was assigned in the latter part of August, 1915, to the San Francisco of the Isthmian Line, bound on a voyage to the River Platte. There were days and days of gliding over the waters, then a short stay in Montevideo and Buenos Aires and a delightful trip up the Rio Parana to Rosario. The latter has many attractions and I remember it chiefly because of the fact that we enjoyed some excellent duck shooting while the San Francisco was docked there. We steamed for New York with several thousand tons of linseed and the voyage proceeded without incident until we were four days out. Then fire was discovered on the ship and all hands were called upon to fight it. We succeeded in keeping the flames under control and ran into the harbor of Rio Janeiro, where it was extinguished. Eight days later the San Francisco resumed her voyage northward, stopping at Barbados for coal.

When the vessel arrived in New York we were informed that she had been chartered to go to Siberia with rolling stock for the Trans-Siberian Railway. The Panama Canal was closed, so we were compelled to steam towards the rising sun, instead of taking the shorter route to the west.

We cleared from New York early in December, and twelve days later San Antao, the most northwesterly island of the Cape Verde group, loomed up ahead. Soon other rocky headlands came in sight, and shortly afterwards we rounded Bird Rock and dropped anchor in St. Vincent Bay.

Upon leaving Durban we steamed through the Mozambique Channel, between Madagascar and Portuguese East Africa. We obtained a splendid view of the beautiful, fertile Comoro Isles and I communicated with the French wireless station at Dzaon-dzi, on Mayotta Island. Then followed two weeks of steady steaming, almost on and parallel with the equator, but we encountered fair weather and near the end of January the ship tied up in Sabang harbor.

Sabang is situated on Pulo Weh, to the extreme north of Sumatra, the island being mountainous, and covered with luxuriant vegetation. There are numerous pepper and cocoa-nut plantations, the scenery is gorgeous, and the customs of the people very odd. Sabang has about 600 inhabitants, most of whom are coolies employed by the coal company. The bay is very picturesque, being surrounded by high hills covered by a dense tropical growth. The water is clear, and hundreds of fishes can be seen plainly.

Leaving Sabang, we headed down the Malacca Strait, passing among the Malacca Islands, once the center of great piratical activities, and thus into the China Sea. Here the gorgeous sunsets and the large amounts of phosphorous in the water are worthy of note.

We sighted the rugged, mountainous coast of Japan, on February 14th, and through blinding snow-storms entered the Inland Sea and came to anchor between Moji and Shimonoseki. In spite of the weather, we had hardly anchored when a larger number of vendors came on board and set up their shops on the hatches, giving the ship the appearance of a bazaar. Both men and women coaled the ship, and it was difficult to distinguish one from the other, although most of the latter had children strapped to their backs. In the towns most of the buildings are low, have the same color, and are constructed on architectural lines peculiar to the country. The customs of the people are deeply interesting, mystery and strangeness pervading them. The belles, with their swaddling clothes and stilt-like sandals, seemed very odd to us of the Western world. Most engaging were the manners of the Japanese whom we met and my visit to their country was given added interest by the knowledge that in it was one of the links of the Marconi world-girdling wireless chain.

After leaving Japan we put in close to the coast of Chosen, and two days later were pushing our way through ice fields, until, preceded by a couple of ice-breakers, we entered Vladivostok harbor.

Vladivostok is built around the inner harbor, with high hills rising at the back. Some straggling streets run almost to the summits of these hills. It is of marked importance, as the eastern terminus of the Trans-Siberian Railway, and as an open port during the entire year. During most of our spare time we were skating, skeeing, or sleighing, and we attended many masquerade balls, most of which were given for charity. Svetlanskaia Ulica (Light Street), was the favorite promenade in the evenings and on Sundays, but when inclement weather prevailed, Kokkana's cafe was a popular gathering place. In the midst of this pleasure-seeking throng it was difficult to realize that the dread mines of Kara were but a comparatively short distance to the west and to the north were those of Ust Yansk and others of even more terrible repute.

(Continued Next Page)

The Golden Era of Spark  
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## Well Known Members of the Crew



The Prune Picker



The Swede



Old Salty



Prom Jersey



(Continued from Page 38)



## 'El Trampo' - Jones

Thus passed four days in Vladivostok and when on March 15th we steamed slowly out of the harbor we left behind scenes that were associated with many pleasant memories. After coaling at Moji again we departed for Ilo Ilo, the second largest port in the Philippine Islands. The town itself is rather small and the streets are narrow. Most of the stores are conducted by Chinese, and many articles typical of their country can be purchased remarkably cheap. While the town is fast becoming Americanized there still remain many of the customs established by the old Spanish influence, and a considerable number of the natives speak neither Spanish nor English. Their habits proved an interesting study, for in some ways they go back to the days of slavery. The Chinese villages, along the shores of the streams which we explored by motorboat, were very odd indeed, being built upon piles driven down into the water. No doubt this form of habitation has its advantages in a country swarming with snakes and lizards.

From Ilo Ilo to Manila the course of the stream runs in and out among numerous islands. Wireless traffic is handled easily, for stations on several of the islands maintain a good service.

It was with anticipations of an interesting sight-seeing tour that I went ashore at Manila. However, I found it not greatly different from the average Latin-American city. An automobile trip up into the hills provided a welcome diversion, for the country is attractive, being dotted here and there with villages that are extremely primitive.

At Singapore, our next port of call, I found a city with a population of 193,000, which, because of its geographical position, on a small island at the extreme southern end of the Malay peninsula, possesses a trade and importance out of all proportion to its size. About the outskirts of the place wild animals prowl. Their number includes tigers, elephants, panthers, tapirs, wild hogs and deer, the first-named species frequently finding their way into the city. Singapore has a Coney Island, it should be chronicled, but it differs in every way from New York's famous resort.

Easter Sunday found the San Francisco churning her way into Colombo Harbor where two hospital ships and two transports filled with Australian troops reminded us of the great European war. Just outside the city are the extensive tea plantations of Sir Thomas Lipton, a visit to them providing one of the most attractive features of our stay.

An adventure with sharks in the Indian Ocean marked the next chapter of our voyage. When we were midway between Colombo and the island of Socotra, the ship sprung a leak and it was necessary to lower the carpenter over the side to make repairs. He accomplished his task successfully, but at some risk for the waters about the vessel swarmed with man-eaters and in order to protect the carpenter from attack the officers of the San Francisco directed a continuous rifle fire upon them.

Steaming close to Aden, reputed as the place in which prevail the warmest weather conditions in the world, we ran past Perim late in the evening of the same day into the Red Sea. On the morning of May 7th we sighted the peak of Mount Sinai, where those ten very brittle commandments were made. Then came our trip through the Suez Canal, on the banks of which were encamped Australian troops, and at length we arrived at Port Said.

After steaming the length of the Mediterranean we stopped at Oran, the second largest city in Algeria. It is divided into two parts, the old and the new, which are separated by a ravine and a rivulet, and joined near the beach by a tunnel. The modern part is growing rapidly, and already contains some fine buildings. Oran originally belonged to the Spaniards, but was abandoned by them after a severe earthquake, and was afterwards occupied by the French. There are some celebrated thermal baths near the place.

We arrived at Liverpool without mishap on May 22nd. Some of our cargo was discharged there and then we proceeded to Greenock with the remainder.

The San Francisco sailed for the west coast of South America on July 29th, passing through the Panama Canal exactly three months after we made the passage of the Suez. Two days later we entered the Buenaventura River and anchored off the town bearing that name.

Callao, our next stop, is important as the seaport of Lima, the capital of Peru. Lima is about eight miles inland from Callao, an electric train service being maintained between the two places. Lima is built on a level tract of country at the foot of the Andes. The old Cathedral, built in 1625, contains great wealth; there are pillars and other decorations of pure gold and silver. I also saw in the Cathedral the bones of General Don Francisco Pizarro, who founded Lima.

Pizarro, it should be stated for the benefit of those who are not familiar with Lima's history, was that ruthless Spanish adventurer who was sent to conquer Peru, his countrymen having heard of its great wealth. By treachery he captured Atahualpa, the Inca, who offered as his ransom to fill the room in which he was confined, as high as he could reach with vessels of gold. Pizarro accepted the offer, the value of which is estimated at \$15,000,000 in gold, but as soon as the treasure was in his possession he put the Inca to death. The powerful dynasty passed away with the death of Atahualpa, but many of the latter's descendants still live in the mountains of Peru.

During my stay in Lima I climbed Mount San Cristobal and visited the Lima 10 k. w. wireless station on top of the lofty eminence. From the station I obtained an excellent panoramic view of the city.

Arica, Caleta Junin, Iquique Antofogasta, Taltal, Cruz Grande and Valparaiso on the Chilean coast were among other places the San Francisco touched at before starting on the final leg of the voyage to New York. The latter port we reached without mishap and there my story ends.

The readers of this article will notice that my recital embraces visits to many countries, showing that the freight operator's assignments may take him to points in every part of the world. And while the old saying about the rolling stone and its failure to gather moss may be recalled, it should also be borne in mind that moss is often found on ruins and the rolling stone becomes bright from contact with various kinds of substances.

--J. Edward Jones  
(January, 1917)



## Of Serpents, Monsters, and Briney Creatures

Capt. Walt Jaffee



(Continued from Page 28)

There is a strong case for sea serpents in the form of eels. Larvae have been found that measure six feet. The larvae of the common eel is three inches long and grows to a 4½ foot adult. The larvae of the conger eel is 4 inches long and the adult reaches up to ten feet. And there are sightings, twenty-three in all, the last off the coast of France in 1964. Only seen when making a great commotion in the water, this creature is believed to surface only when dying. Its death throes cause all the commotion. This monster eel looks exactly like its cousins except for its size.

There are reports, from reliable sources, of fifty foot long ocean going crocodiles, gigantic turtles, and even a large yellow tadpole. But the sightings are too few for comment.

Sea serpents have to exist and in more than one type. There are just too many reportings of them to be fancy. Perhaps not a Kraken or mermaid, but certainly a giant squid or modern pleisiosaur.



--Capt. Walt Jaffee



I must go down  
To the sea again,  
To the lonely sea  
And the sky,  
And all I ask  
Is a tall ship  
And a star  
To steer her by.

--John Masefield



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ALL STEAMERS REGISTERED IN ITALY

## Italian Beauties

Thanks to Charter Member Richard S. "Dick" Egolf [S-SGP 71] a dedicated loyal member since we started back in 1968 for furnishing the Society with many fine pictures of steam ships and their equipment, especially those that touched at Port of New York. Dick was Manager for RCA's International Program and Radiophoto Services. His first ship was back in 1912 on the SS Hamilton.

The Leonardo da Vinci pictured above has perhaps the most beautiful lines he has ever observed unless it was the SS Canbera. They 'have' the 'big ship' feeling although they may not give you the 'big ship' feeling of the Majestic, Mauretania, Leviathan or some of the others of the 1920's and 1930's - a history period for passenger ships which will perhaps never be repeated. Those who have not been aboard one of these Sea Giants have lost a dimension in their lives that can never be experienced again.

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